Textile World
MAY, 1958
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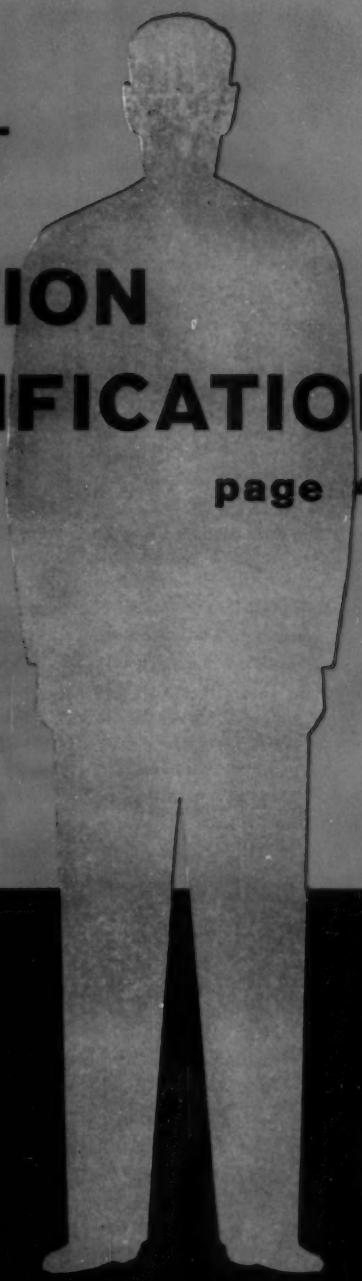

what you should know about—

- **JOB EVALUATION**
- **WORK SIMPLIFICATION**

page 47

TEXTURED YARNS

page 60

GOOD MERCERIZING

page 69

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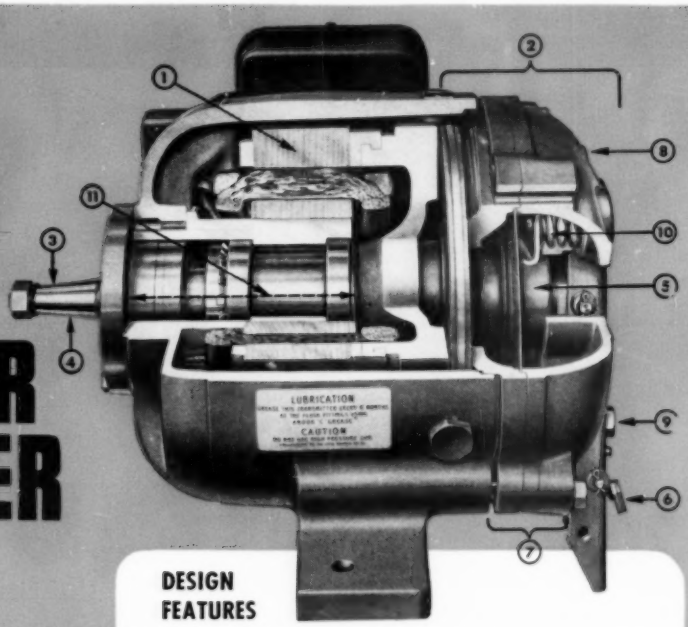

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This Month in **TEXTILE WORLD**

May, 1958
Volume 108, No. 5

BUSINESS

Tire-Cord Race Tightens. Auto producers may decide soon whether or not to switch over to nylon in original tires 3

Senate Will Probe Textiles. Commerce Committee would seek causes of industry decline in postwar period 4

Upturn Picture Still Clouded. Few textile men think it may come before the third quarter; others look to the fourth period 5

Textile Stocks Hit New 1958 Highs. Blue-ribbon companies led advances as investors sought good values 5

A Hundred Years for Bemis. Company enters into second century of profitable growth and development 6

Hong Kong Imports Eyed. Textile industry sees possible threat in fast-rising volume of apparel coming in 7

Reciprocity Fight Shaping Up. First skirmishes show Eisenhower will have a tough time getting Trade Agreements Act renewed as is 8

Exports to Canada Threatened. Our best customer may kick over the textile-tariff traces 9

Wool Auctions Under Fire. Australian growers are putting on the pressure for a change, claiming they add to large profits made by speculators 10

Labor Truce for Carpet Mills. Union pulls in its horns this year in face of recession among rug mills 11

Factoring Rates Seen Cut. Reserve Board's cut in discount rate will ease prime borrowing 11

Textile World's Index and Monthly Indicators 12

MANAGEMENT

Small Mills in a Pinch (Editorial) 45

What You Should Know About Job Evaluation and Work Simplification . . . to help cut costs, use manpower more efficiently, and eliminate waste time and motion 47

How Effective Are Your Training Methods? Now is a good time to be more selective in hiring and to improve any training techniques that may be weak 97

HUMANICS—A Pessimist Can Be Helpful 112

PRODUCTION

. . . YARNS

Textured Yarns—One of the Fastest-Growing Textiles. What are they? How do they compare with spun and filament yarns? What are the problems in manufacturing? These and other questions are answered in this special feature 60

. . . CARDING & SPINNING

How Rain Damage Affected Delta Cotton Properties 51

Methods and Instruments Feature Cotton-Clinic Round Table. Reports briefed cover effect of air on carding, quality-control practices, effect of combing on staple length, half-lap needling, and three testing instruments 88

. . . WEAVING

Large Section Beams Increase Yarn Capacity 66% . . . at Carolina Mills. A mill-made slasher creel occupies little space 56

Checklist for Slashers Gives Better Slashed Warps 180

. . . KNITTING

How Alba Makes Stretch Panties on Full-Fashioned-Hosiery Machines. It's not a big job to convert machines to knit this new fashion item 54

Plastic Trays Solve Hosiery-Boarding Problem. Here's a system of servicing boarding machines that has proved successful 58

. . . ENGINEERING

Controlled Motor Heat Levels Spinning-Room Temperature 59

Portland Woolen Mills Switches to Centralized Lubrication. Results are longer ring life, less oil consumption, and better yarns 95

Please turn the page

This Month in **TEXTILE WORLD** continued

CHEMICAL TREATMENT

This Month in Textile Chemicals 65
New Dyes & Chemicals 68
What Makes Good Mercerizing? You must maintain proper caustic strength and be sure that dwell time is sufficient, pad-tenter ratio is right, and afterwashing is efficient 69
Mechanized Screen Printing Speeds Production at Bernard 76
How To Check Evolved Formaldehyde in Resin-Finished Fabrics 80
How One Dyehouse Processes Yarns at a Profit 84

DEPARTMENTS

Book Reviews 134
Calendar 16
Editorial 45
Equipment and Supply News 115
Kinks and Short-Cuts 99
Mill Maintenance 184
New Dyes and Chemicals 68
New Literature 128
News About Men 196
News About Mills 15
News About Suppliers 190
Obituary 200
Pointers for Supervisors 97
Questions and Answers 111
Reader Service 209
Round Table 18
Textile Chemicals 65
Textile Business 3
Advertisers' Index 208

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TEXTILE BUSINESS

Textile World

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THIS MONTH'S HIGHLIGHTS

Tire-Cord Race Tightens
•
Congress Will Probe Textiles
•
Upturn Picture Still Clouded
•
Textile Stocks Hit 1958 Highs
•
A Hundred Years for Bemis
•
Hong Kong Imports Eyed
•
Reciprocity Fight Shaping Up
•
Exports to Canada Threatened
•
Wool Auctions Under Fire
•
Labor Truce for Carpet Mills
•
Factoring Rates Seen Cut

Du Pont Goes All Out For Nylon Tire Cord

While Detroit waits for consumer reaction to nylon-cord tires (see story at right), Du Pont is betting on nylon to win.

Although it makes both rayon and nylon tire cord, Du Pont is backing nylon in its advertising and merchandising. Campaigns will be directed at five groups: tire dealers, automobile manufacturers, new-car dealers, truck and fleet operators, and the consuming public.

Tire-Cord Market Scramble Gets Into Full Swing

Chevrolet started tire-cord consumer-reaction tests last month that might have important effects on the race between nylon and rayon for the tire market.

Chevrolet will put unmarked nylon tires on 40,000 1958 models to find out what the public really thinks of them. If it gets a favorable response, it will probably equip most of its 1959 standard lines of cars with nylon. Or it may make nylon optional.

It hopes the results will give it an added sales point to put it further ahead of its closest competitor, Ford, which has long been breathing down its neck. Chevrolet is making cars this year at a rate of 28% of the entire passenger market and Ford at about 20%.

•

Right now close to 100% of 1958 passenger cars are rolling off the assembly line on rayon tire cord.

But Detroit auto men say that if Chevrolet makes the switch Ford will probably have to follow. If both switch, about half of the original passenger-car tires coming out of the factory would be using nylon. The rest of the industry might follow suit as fast as it could convert. Such a switch would be a staggering blow to rayon tire-cord producers.

Last fall nylon-cord producers thought they could take over the market by 1960. Nylon was going strong then, but most of the nylon tires were going into the replacement-tire market.

Then something happened. Consumers began to find flaws in these "miracle" tires that had been hailed widely as practically blow-out proof. Here are some of their gripes—

- The tires overheated on long road trips.
- They whined or thumped at high speeds.
- The treads wore out faster.
- Sometimes the rubber pulled away from the tire cord.
- They cost more than rayon-cord tires.

Detroit keeps a close ear to the ground to detect consumer reactions. The result: a wait-and-see attitude and another model year on rayon.

•

But nylon producers haven't been standing still all this time. They've been working on better nylons.

Chemstrand, for example, only last month announced a new nylon, "the RHB," said to be stronger, resist heat better, and stick to the rubber better than its conventional HB type.

Less than a month ago U.S. Rubber announced a new way of taking the "stretch" out of tires made with nylon cord. (Nylon tires often expanded as much as 4% after short usage, and there had been isolated cases of tires coming off wheels at high speeds.)

The stake in the race is the capture of the juiciest part of a 450-million-lb. tire-cord market. Last year, nylon took an 85-million-lb. share of it. If the Chevrolet tests prove favorable for nylon and Chevrolet gives it the nod, the poundage positions of rayon and nylon for tires could reverse.

Congress Groups to Probe Ailing Textile Industry

The Senate Interstate and Foreign Commerce Committee has promised to look "searchingly" into the reasons for the decline of the U.S. textile industry.

This is the best news textile men have had out of Washington in a long time.

The probe, instigated by Senator Norris Cotton (R.-N.H.), still has to be approved by the Senate. It would look into the effects on the industry of—

- The Trade Agreements Act
- Surplus-crop disposal overseas
- Crop price supports
- Rising imports

A similar probe by the House Interstate and Foreign Commerce Committee is also getting under way, led by Rep. Gordon Canfield, (R.-N.J.). It would follow the same lines as the Senate invesigation.

Committee Chairman Senator John Pastore (D-R.I.) says the investigation is not meant as ammunition against the Trade Agreements Act.

It would also study such matters as mergers, technological methods, and transportation, among other things.

Senator Cotton told his colleagues that 345,000 textile jobs have disappeared, and 717 textile mills have shut down since 1947.

He, and others supporting the resolution, said that among the major causes of the decline is the cotton export subsidy that allows foreign mills to buy their cotton 20% cheaper than domestic mills. The result: a 1000% increase in foreign cotton-cloth imports since 1947.

In addition, the Senators claimed that foreign-aid programs since that time have given away $135-million worth of textile machinery, while the U.S. has bought $240-million in textiles overseas.

Any chance that results will be seen during this session of Congress is out. The resolution calls for the committee to report its findings and recommendations before January 31, 1959. There is a good chance, however, that the Senate will act on the resolution during this session.

Backing up Senators Cotton and Pastore are four Democrats and six Republicans, all of them from the Northeast except Senator Strom Thurmond of South Carolina, who has vigorously fought to have the probe made. It is expected that additional support for its passage will come from other senators in the textile-sensitive South.

In other recent actions on textiles, the Senate Agricultural Committee is starting, but too late for it to have any meaning this session, a new inquiry into cotton pricing and extension of the Soil Bank program as it affects cotton.

The House Agricultural Committee is fighting Agriculture Secretary Ezra Benson's plan for a new cotton subsidy program. The fight, led by Representative James Whitten (D-Miss.), centers around the argument that the Administration should continue its present program of selling surplus cotton to the lowest foreign bidder, rather than switching to a direct subsidy.

Kayser-Roth Merger Complete—Prospects Held Excellent

Julius Kayser and Co. stockholders approved the merger with Chester A. Roth Co., Inc., late last month to form one of the largest knit-goods and hosiery firms in the country.

Roth stockholders had already approved. The new name of the firm will be Kayser-Roth Corp.

Before the merger both companies were doing well.

Abraham Feinberg, Kayser president, said that profits for the nine months ended March 31 were slightly ahead of the like period in fiscal 1957 when the company earned 56¢ a share on reported earnings of $423,000.

Roth's sales in March were 8% higher than in 1957. Feinberg said the trend looked pretty good and that profits for the year would be satisfactory.

Under the merger terms, Kayser will issue $13.3 million worth of securities for Roth's assets.

Big Wool Purchase by Wyner Made To Restore Confidence

A unique gesture to help pull up the textile economy was made last month.

I. A. Wyner Co., one of the nation's leading manufacturers of wool jerseys, announced it would start immediately ordering 75% of its entire season's commitments in wool as a gesture of confidence in the state of the economy.

The action was made known by I. A. Wyner and was matched immediately by the Pomerance Corp., makers of apparel. Pomerance said it would order from Wyner 85% of its entire season's requirements for wool jerseys.

The move represented the purchase of more than $3,750,000 in wool by Wyner. He said the wool market had reached its bottom and should begin to strengthen.

Business Upturn— When Will It Come?

Opinions on when a significant upturn in textile business will occur are still split. Few observers expect it before the third quarter, and some have their eyes on the fourth quarter.

Early this year when recession talk was beginning to be an influence on the general economy, textile men talked optimistically of an improvement before June.

They're more cautious now. Business is not expected to pick up seasonally until early fall. May is traditionally a slow month for textiles. June sometimes sees more activity late in the month, and July is often the deadest period of all.

So most mills are preparing to wait it out. Meanwhile the inventory position has changed little since January. Stocks on hand are estimated at about 5½ weeks of production and inventories at about 9 weeks—just about where they were a year ago at this time.

There is some ray of optimism, though. It is probable that inventories along the pipeline are shrinking. Converters and cutters have been buying hand to mouth and leaving the mills with the inventory problem.

A movement upward could quickly drain off mill stocks and start the cycle upward.

Leading Textile Stocks Reach New 1958 Highs

Several leading textile stocks hit new 1958 highs in April.

J. P. Stevens, Burlington Industries, Cone Mills, Lowenstein, and American Viscose sparked the advances—all blue-ribbon companies.

Shares were bought generally by brokers and others outside the industry. This fact seems to reflect a belief among investing groups that textiles are ready to come out of their long slump.

•

Comparative 1958 positions of some of the leaders were—

	High	Low	Recent
American Viscose	31	25½	28⅞
Burlington	12¼	9½	12⅛
Celanese	16⅜	12	15⅞
Cone Mills	12¼	9⅜	11⅞
Dan River	10⅞	9⅛	10⅝
Lowenstein	14¾	11⅜	13⅞
Pacific Mills	24½	20¾	24
J. P. Stevens	22⅜	17½	21⅜

Du Pont Patent Action Pleases High-Bulk Spinners

Worsted-yarn spinners who process Turbo high-bulk yarns heaved sighs of relief late in March when Du Pont stated that Patent No. 2,810,281 relating to high-bulk yarns had been assigned to it and that the patent would be dedicated to the public.

The patent was granted to Delaware Mills last October. Since then spinners have been fearful that Delaware would institute a licensing arrangement for mills to produce high-bulk yarns on the Turbo system. **Delaware had already indicated a form of licensing and quality-control plan.**

•

Although high-bulk production is off somewhat from last year, millions of pounds of these yarns have been spun since they were introduced in 1954, when Delaware applied for the patent. Retroactive royalty payments on these yarns would be disastrous to many high-bulk yarn producers who have experienced lean times recently.

The patent is applicable to all mixed-shrinkage fibers that can be combined to produce high-bulk yarns. These fibers include Acrilan, Darvan, Dynel, and Creslan, competitors to Du Pont's Orlon. But because the patent is publicly dedicated, there are no restrictions on fibers that can be processed under the patent.

Domestic Staple Producers Take Beating From Abroad

Domestic rayon producers still continue to take a beating from foreign rayon staple. Textile Organon figures just released showed imports in 1957 of 83,830,000 lbs. West Germany was the principal supplier, along with Italy, Austria, and France.

Meanwhile domestic deliveries of acetate yarn and rayon were down 10% form 1956.

Woonsocket Wool Spinners Running at Full Capacity

Good news came out of Woonsocket, R. I., last month. Wool spinners there said they were working at capacity and unusually busy because of the late start in seasonal business.

Many plants are on three shifts, and at least two are operating six days.

There was a slump in demand during the latter part of December, and orders coming in now are from customers trying to beat the deadline for the fall trade.

Woonsocket mills produce for both weaving and knitting mills.

Textile-Mill Failures Fewer Than Last Year

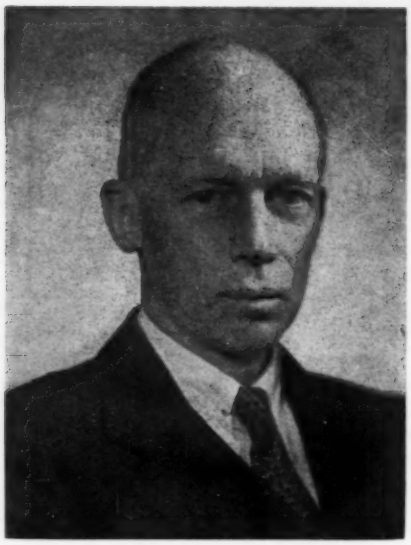
All the textile news hasn't been bad. Last month, Dun & Bradstreet's Credit Clearing House announced that there was 24% fewer failures among manufacturers of textile-mill products in the first quarter as compared with the same period in 1957. The liabilities involved were down 39%.

Things were tougher for the apparel and finished-product manufacturers, though. The report showed creditors' losses up 26% and business failures up 5% from last year in the first three months.

Acrylics Lead Parade In Man-Made-Fiber Market

Acrylics still continued to spark the man-made-fiber market. Acrilan's first-quarter sales were up 50% from 1957. Orlon and Dynel gains were also well ahead of last year.

Upsurge in sales was attributed to the fiber's wider use in carpets, blankets, jersey fabrics, automatic wash-and-wear garments, and men's and women's suits. A big sales year is expected.



PRESIDENT F. G. BEMIS. He sees another century of progress.

Bemis Hale and Hearty As 100th Year Rolls Around

This year Bemis Bro. Bag Co. celebrates the 100th anniversary of its founding in St. Louis.

As with many textile and bag manufacturers, last year was a tough one. But, like all older textile companies, Bemis has been through a lot of hard years. And F. G. Bemis, grandson of the founder and its president since 1940, says the company is looking forward to another 100 years of profitable growth and development.

One of the major steps taken during its 99th year was the establishment of a department of product planning that will give concentrated attention to this highly important phase of management.

Founded as a maker of cotton bags for flour mills, Bemis Bro. has always considered textiles an important part of its business even though other materials like paper and plastics are now coming up fast.

Judson Moss Bemis, the company's founder, arrived on the St. Louis levee in 1858 with six sewing machines, two printing presses, $2,000 in savings, and an idea.

The idea was simple: Substitute and promote machine-stitched, machine-printed bags as a replacement of hand-stitched, stenciled bags and personally guarantee his product at a time when guarantees were seldom mentioned or made. His first order was for 200 half-barrel cotton sacks to be delivered at the rate of 50 a day.

From the small beginning, Bemis has grown to be one of the largest bag-manufacturing and packaging companies in the country, with converting plants and cotton and paper mills from coast to coast and with products designed to encompass in bags or flexible containers just about anything made by industry.

Bemis' 1957 annual report disclosed:

Total assets—$66,658,294
Stockholders' equity—$50,272,532
Book value—$70.91 per common share
Current ratio—5.7 to 1

Net sales for the year totaled $121,475,701, a drop of 3% from the $125,581,714 in sales in 1956. The decline was due to lower burlap and cotton-goods prices and to reduced industry volume in most of the company's lines.

Net income last year was $1,785,862, equal to $2.50 per common share after preferred dividends, compared with $2,749,368, equal to $3.88 a common share, in 1956.

"A large part of this decline occurred in the cotton mills' operations," Mr. Bemis said. "The textile industry as a whole has been in a recession phase for many months. Reduced demand and weak goods prices have resulted in unsatisfactory profit margins for most producers."

Bemis not only maintains a dominant position in cotton, burlap, small paper and multiwall bags, and specialty items, but it also has moved aggressively into flexible (polyethylene) packaging. It is also a producer of inks, tapes, cotton goods, threads, and packaging machinery.

Hong Kong— Another Imports Threat?

Rising imports from Hong Kong had textile men wondering last month whether they were in for another flood of cheaply produced goods from overseas.

The amount of textiles and manufactured garments from Hong Kong is still small in comparison to the amount from Japan, but it has all the earmarks of a future threat.

Hong Kong prices are even cheaper than Japanese. Furthermore, they are under no voluntary restrictions regarding exports to the U.S. That's what has U.S. textile men worried. While there is a very small basic textile industry in Hong Kong, the needle trades and garment-manufacturing facilities on the peninsula can turn out huge quantities of blouses and other clothing.

•

Another thing that rankles U.S. textile men is that a considerable amount of the textiles going into these items is suspected of having come from Red China originally.

In 1956 there was virtually no textile trade with Hong Kong, and in 1957 it sent less than 3-million sq. yds. of fabrics to the U.S.; but in manufactured items the rise was sharp. Here's how the trend is shaping up:

	1956	1957
Damask-type napery...	5,630 lbs.	28,000 lbs.
Bedsheets	none	151,611
Terry towels.....	7,880	229,320
Cotton towels, other ..	47,498	374,410
Shirts	$143,478	$2,507,431
Other apparel.....	$54,669	$2,097,182

Voluntary Quota System Working Well, Says Japan

Japan defended its voluntary system of textile quota controls last month.

Its Embassy replied to a series of charges by Congressmen from New England and Southern textile areas that there have been violations.

Spokesmen for the Japanese said that not only were the quotas being controlled but that their exports of 214,970,000 sq. yds. of cotton goods last year were 8½% below the voluntary quota of 235,000,000 sq. yds. they had imposed in January, 1957.

They did admit that there were some illegal transhipments through other countries but said these were being investigated and the offenders being penalized through cash penalties, the reduction or suspension of export quotas, and the suspension of foreign currency for raw-cotton purchases.

The Japanese statement said that not only was the over-all total of approved shipments within the quota but that individual categories covering velveteens and other goods likewise did not exceed the established quota.

These protestations did little to mollify a large segment of the textile industry that would like to see a bi-lateral trade agreement on quotas made on an official treaty basis.

Investment Group Formed

Robert L. Huffines, Jr., former president of Burlington Mills Corp., Textron, Inc., and Amerotron Corp., will head up a group of men, mostly industry old-timers, who last month formed the Worth Fund, Inc. The firm will be a closed-end, nondiversified company to deal mostly in textile stocks.

The group will invest in situations where there is a good chance of capital appreciation and long-term capital gains, in the belief that textile securities are far undervalued.

Eisenhower Faces Fight On Trade Agreements Act

Eisenhower will have a tough time getting the Trade Agreements Act renewed for another five years. He may have to compromise.

This likelihood was made clear last month during the first skirmishes between protectionists and free-trade groups before the House Ways and Means Committee.

The act expires automatically on June 30 unless Congress gives it the go-ahead or passes another bill to replace it.

The Administration favors bill HR 10368, which would not only extend the act but make it even stronger by—

- Adding to the tariff-cutting powers of the Executive Branch
- Broadening the President's power to make multilateral trade and tariff agreements
- Beefing up the policy of seeking world-wide tariff concessions through international bodies like the General Agreement on Tariffs and Trade

But protectionists, led by the textile industry, want no part of this program. They say the U.S. Tariff Commission has left them out on a limb for years while the State Dept. plays international politics at their expense.

They proposed their own revision—**the Dorn Bill (HR 11250)**—which would in effect kill the Trade Agreements Act and substitute more built-in guarantees of security. Main features of that bill are that it would set up a United States Foreign Trade Board, with the broad powers now being exercised by the State Dept. It would—

- Supercede the present U. S. Tariff Commission but retain the current members until the end of their seven-year terms and add another member to the present six
- Be independent of the Executive Department
- Recommend to Congress appropriate policies, measures, and practices regarding foreign trade
- Authorize the President to make bilateral foreign-trade agreements with principal suppliers
- Look into the effect of foreign-trade concessions on the domestic economy, particularly those made since Jan. 1, 1948, and recommend action to Congress.

The biggest objection of textile men and others has been the application of the "peril point" and "escape clause" provisions of the Trade Agreements Act as it is now being administered.

They argue that under the act—

and most nations exporting to us.

Administration supporters who like to call the Trade Agreements Act the "Reciprocal Trade Bill" sing a different tune.

They argue that under the act—

- Our world trade furnishes 4½-million jobs to Americans.
- The U.S. already has a preponderantly favorable balance of trade—export $19½-billion a year, not including military supplies, and imports worth $11-billion a year.
- Our allies' industrial potential might fall into the Communist orbit if we raise barriers against their goods.

Better Nylon Prospects—Chemstrand Workers Back

Most of the 1,100 employees Chemstrand let go early in the year were back on the job by the end of April, the company reports.

Reason is that **the nylon market begins to look good again after a dreary first quarter.** Back in February, most mills cut their nylon-yarn inventories to about a month's supply. Now they're beginning to buy again.

DuPont recently reported its March sales were up 10% and still rising. But it has not stepped up production above the level of present demand and has not rehired many of the 1,490 workers laid off early in the first quarter.

Du Pont has a nylon labor force of 10,000 normally.

Springs Mills 1957 Profits Up 7% Over Previous Year

Springs Mills reported gains in sales and earnings for 1957. The company, one of the few privately owned firms that makes its earnings public, reported profits up about 7% in a report recently released to stockholders by Col. Elliot Springs.

Production in 1957 was up 6%, and gross income rose 8%. The firm reported a profit of $9,885,220 on sales of $142,005,518 in 1956.

New Du Pont Polyester Has Wide Possibilities

Du Pont is now evaluating a new type of polyester fiber similar to Dacron in staple form.

This fiber should be of wide interest to worsted manufacturers because it makes possible a broader range of worsted-Dacron blends.

Du Pont hasn't put it into commercial production yet pending the results of the evaluation.

During this month and next month there will be lively debate both before the House Ways and Means Committee and the Senate Finance Committee. The final vote may not come before late June.

Weather the Big Factor In Cotton-Crop Picture

Weather conditions for the next two months are the all-important factor in the cotton picture.

Excessive rains and cool weather in some areas have considerably altered earlier estimates of the next crop.

Growers had until March 28 to withdraw acreage from production and place it in the Soil Bank, and crop prospects looked so bad that more than 5-million acres were withdrawn. Probably not more than 12½-million acres will be planted, the lowest since just after the Civil War.

Out of that acreage will be produced, if there's good cotton weather, a crop of maybe 10½-million bales, the smallest crop since 1950.

A small crop and bad weather combined would mean a shortage of good grades of fiber. It would also mean that rayon staple would become even more a factor in cotton-system spinning. Rayon has been used quite a bit in the last year to improve yarns made with poorer grades of cotton by giving them more tensile strength and wear resistance.

Exports to Canada May Be Curtailed

Textile exporters are concerned about the stepped-up campaign against U.S. fabrics now being waged in Canada, their best customer. Twenty per cent of U.S. export goods move north.

Last month John Diefenbaker of the Conservative party won the premiership hands down over Lester Pearson, the Liberal, in the general elections.

For U.S. textile men this political event could mean—

- Higher tariffs on goods entering Canada
- More Canadian purchases of British fabrics
- Reduced imports from the U.S.

•

The Conservative party is traditionally high-tariff-minded. Its strength comes from industrial Ontario, heart of the Canadian textile industry. Although Diefenbaker himself is considered less protectionist than most of his party, pressure to up the tariffs will be strong.

Canada's textile industry provides around 40% of domestic apparel needs. Most of the rest comes from the U.S. Canadians

CONTINUED ON NEXT PAGE

Department-Store Sales Off in Mid-April

Department-store sales as of the week ended April 19 were off 9% from sales in the 1957 week, the Federal Reserve Board reported. The drop followed a 16% decline the week before.

But things weren't as bad as they sounded. Last year Easter came on April 21, this year on April 6. Post-Easter sales invariably show a drop from the period before the holiday.

Weekly index of the board, not seasonally adjusted and with 100 the figure representing the 1947-49 level, was 117 for the week ending April 19. For the same week in 1957 the index level was 129, reflecting the different Easter-market conditions.

British Wool Production Up

LONDON—A growing sheep population and a bigger yield of wool per sheep last year gave Britain its best wool production since 1939. Total clip rose by 7.5-million tons to more than 75-million tons.

The British Wool Marketing Board, releasing these figures, said the average price paid to producers will be 50.85 pence a pound, a half-penny per pound less than last year.

Over-all guarantee remains at 56.25 pence per pound; but the deduction for marketing costs has been increased, mainly because interest rates have risen since the marketing costs were fixed in April last year.

Rayon and Acetate Shipments Down in the First Quarter

Rayon fiber and yarn shipments were off 16% in the first quarter of this year compared with the same period of 1957, according to Textile Organon.

Total shipments in the first three months were 237,800,000 lbs., compared with 282,700,000 lbs. in the corresponding period of 1957.

have been kicking about U.S. textiles ruining their industry for years.

But of the 203-million sq. yds. of cottons exported from here to Canada last year, 83-million were tobacco cloth, which Canada doesn't make.

Hard pressure is being put on a category of about 50-million sq. yds. of the remaining 140-million sq. yds. of U.S. exports. These categories are the finished middle-count cloths like printed percales, denims, converted drills and twills, colored-yarn fabrics, and combed broadcloths. The Canadian mills make these fabrics too. The rest of the U.S. imports run the gamut from numbered ducks to voiles and lawns. Many of these fabrics would be untouched or affected little.

More negotiations are scheduled for this month before the Canadian Tariff Board. On one side will be ranged the Primary Textile Institute, representing the mills and calling for higher rates. On the other side will be department stores, importers, garment manufacturers, and wholesalers, who see in the hikes an inflationary force that will raise prices to Canadian consumers.

•

The Canadian drive for import protection is part of a world pattern. U.S. exporters are seeing more and more barriers raised against U.S. goods.

They sold more goods abroad last year than they did in 1956, thanks to the Equalization Payments Program. But the 1952-1956 yearly average was 680-million sq. yds. of cotton goods alone. **Last year, they shipped 553,386,000-million sq. yds.**—better than an 18% decline.

Their second-best customer, the Philippines, is in the middle of an austerity program. Cuba, their third-best outlet, is in revolt.

Throughout South America there are restrictions against U.S. textiles, the worst case being in Venezuela, where the government has raised import duties so high that trade in fabrics to that country has virtually halted.

The picture for 1958 looks gloomy. Exports of cotton goods will probably drop well below 500-million this year—a decline of more than 26%.

Chemstrand Sees Prospects Brighter for Rest of Year

Chemstrand Corp. reported net earnings after taxes of $1,885,000 against sales of $32,184,000 in the period ending March 31.

First-quarter profits were adversely affected by the pinch of a downtrend in sales and the start-cost of new facilities.

Sales for April indicated an appreciable upturn in demand for tire-cord yarns that the company expects to continue for the rest of the year. The company's prediction was based on what it called a growing consumer demand for nylon textile fibers and the promising outlook for acrylics.

US Trade Fair Will Show What Competition Is Doing

U. S. textile men will have a good chance to look over the competition this month when the World Trade Fair is held at New York's Coliseum May 7-17.

They will see a wide range of imported woolens, tweeds, silks, and accessories displayed by 60 nations.

France, Italy, Spain and the United Kingdom are prominent exhibitors. Japanese firms showing their wares include Toyomenka, Kureha Spinning Co., and Kanebo, among others.

There will also be new man-made-fiber manufacturing units and knitting machines from Holland on display.

Botany Profits Climb In the First Quarter

Botany Mills, Inc., came up with sales in the first quarter of $21,121,000, considerably higher than those of the first quarter of last year, when they amounted to $15,344,000.

Unaudited net income for the first quarter amounted to approximately $1,635,000, or 87 cents per share of

Australian Wool Auctions Under Fire of Growers

MELBOURNE, AUSTRALIA—Pressure is being exercised by wool-growing interests in Australia to change the existing system of wool auctions. They claim it increased the price of wool because of the large profits made by speculators and middlemen between growers and manufacturers.

One proposal is for the wool to be disposed of through an organization similar to the Australian Wheat Board. The proposed board could fix a firm price every three months according to type, count, and yield; and the price would be agreed upon with agencies throughout the world. Wool brokers could become receiving agents for the board.

There is also a renewed interest in Australia in establishing

a floor for wool prices. Wool experts believe that a floor-and-ceiling system could eliminate wool's present disadvantage against competitive fibers on the score of the wide and entirely unpredictable fluctuations in cost to the textile processors.

But it is understood that the Australian Federal Government is not likely to introduce any far-reaching changes before the Federal elections, which will take place in the second half of 1958, possibly as late as November or December. Several cabinet ministers believe that the auction system should be preserved and that the refusal of growers (in 1951) to accept an artificial floor under wool prices has put an end to similar schemes.

Slump-Hit Carpet Mills Get Respite From TWUA

All surface signs point to another year of truce between carpet and rug mills and TWUA.

Contracts expire June 1; but apparently both sides are satisfied with the status quo, since nobody has taken advantage of the 60-day cancellation clause.

The union controls about 15,000 workers in 17 companies with 23 plants, or about 80% of the industry. Bigelow-Sanford, Karagheusian, and Mohasco form the core of the union membership. The other two big ones, James Lees and Magee, are unorganized.

Bigelow-Sanford ended the last quarter of 1957 in the red, and profits were reported down 87% from 1956. James Lees reflected conditions in the industry with a 14.5% drop in net earnings for 1957.

Union officials knew they hadn't a chance of getting anywhere with a demand for wage increases this year in the face of bad business. They pulled in their horns as they did with cotton and rayon mills and with the woolen and worsted companies a few weeks ago.

But they're only biding their time. They'll be back as soon as the industry pulls out of the slump.

Factoring Rates May Be Cut

Textile factoring rates will probably go back to the traditional 6% as a result of the Federal Reserve Board's cutting of its discount rate ½ point to 1¾%.

The board's move means that prime borrowing charges at banks are expected to drop to 3½% from the current 4% for A-1 risks.

Last summer when commercial bank rates were 4½% for best borrowers, factors added a surcharge of 1.2% to their 6% rate. In January when the Board cut its rates to bring commercial bank charges to 4%, factors reduced that surcharge to .6%.

Short term effects of the FRB cuts on the textile industry are otherwise considered small.

common stock outstanding, after provision for dividends on the company's cumulative convertible preferred stock.

This compares with net income of approximately $1,457,000, or $1.22 per share of common stock outstanding, in the 1957 first quarter. 1958 per-share earnings are based on an increased number of shares—now totaling 1,881,000—compared with 1,633,000 shares outstanding in the first quarter of last year.

Sales currently are running at an annual rate of approximately $100 million.

Textile Prices Reflect Slow Market Demand

Textile prices continue shaky, with the key fabric, 80-squares, down to a 12-year low at 17¢ a yard as of the last week in April.

Since the months of April, May and June are traditionally slow months for textiles, it is not expected that any upward movement will be in the works at this time.

Wool fabric prices appear to be in for declines on fabric lines for the spring of 1959. Estimates run up to 10% lower. Mill prices for woolen and worsted fabrics are running about that much lower than they were a year ago.

Cabin Craft Volume Well Over Last Year's

In the face of declining sales in the carpet industry, Cabin Crafts, Inc., announced that sales in the early part of the year are running 44.6% above 1957 volume for that period.

Cabin Craft has plans to spend $1,000,000 in expansion of its floor-coverings division within the next year, it was reported.

By the end of the year the firm will have spent about $350,000 in long staple and new processing equipment.

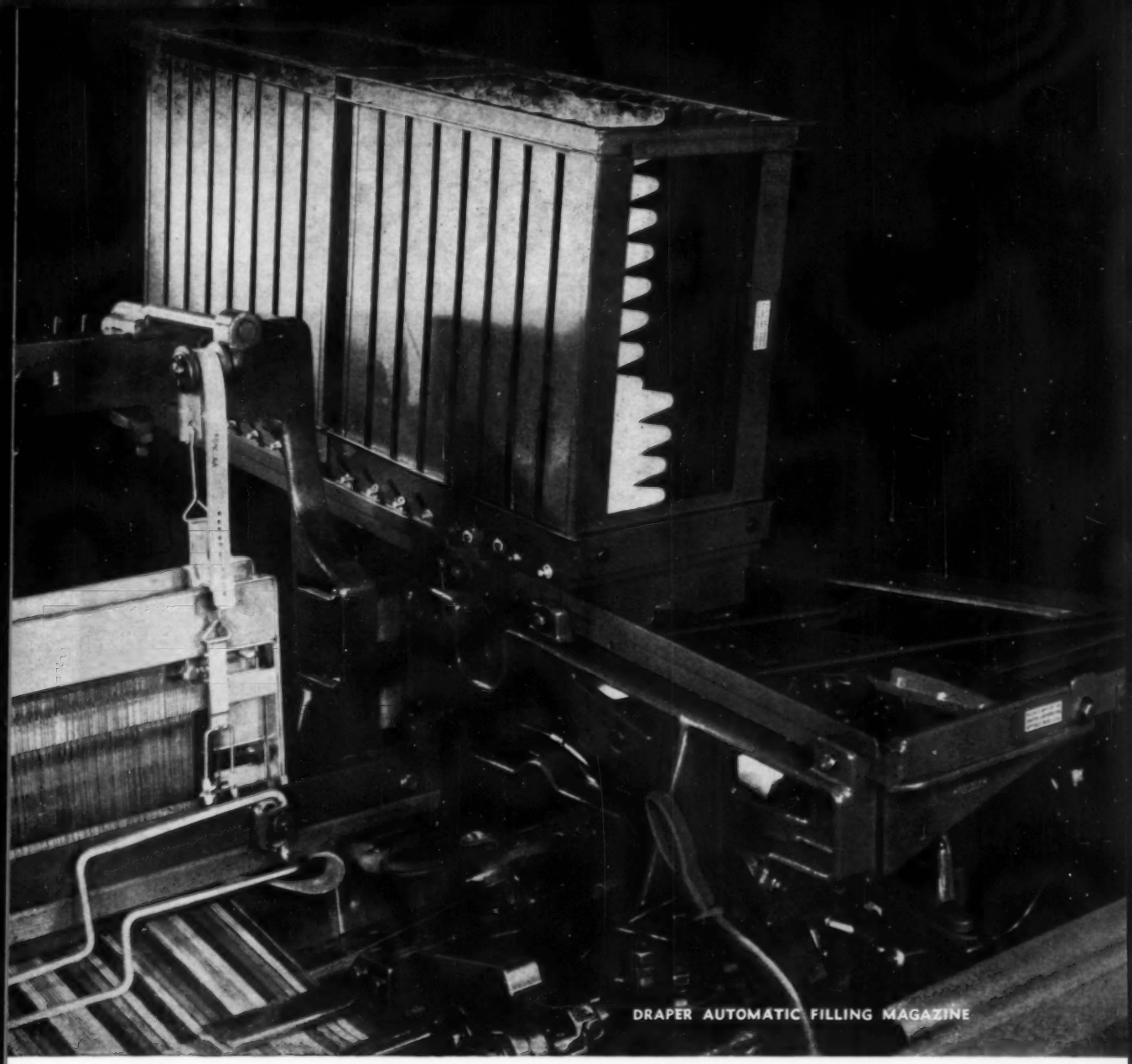
Index of manhours worked in the textile industry adjusted for changes in productivity

Textile World's Monthly Indicators

	Latest Month	Previous Month	Year Ago
Textile World's Index (1954 = 100)	**96**	**99**	**107**
Employment (thousands) B.L.S.	935.8	945.6	1,020.1
Production Workers (thousands) B.L.S.	846.1	855.2	928.5
Weekly Earnings B.L.S.	$56.25	$56.70	$58.35
Hourly Earnings B.L.S.	$1.50	$1.50	$1.50
Weekly Hours Worked B.L.S.	37.5	37.8	38.9
Production Index (1947–1949 = 100) F.R.B.	91	95	106
Wholesale Price Index (1947–1949 = 100) B.L.S.	93.9	94.1	94.6
Manufacturers' Sales (million $) Commerce	1,015	989	1,252
Manufacturers' Inventories (million $) Commerce	2,639	2,694	2,694
Inventories-to-Sales Ratio	2.60	2.72	2.15
Exports (million $) Commerce	129.9	151.8	175.3
Imports (million $) Commerce	87.2	76.9	98.4
Stock Price Index (1941–1943 = 10) Standard & Poor's	19.27	19.19	21.29
Failures (number) Dun and Bradstreet	8	13	13

National Economic Indicators

	Latest Month	Previous Month	Year Ago
Industrial Production (1947–1949 = 100) F.R.B.	128	130	145
Consumer Prices (1947–1949 = 100) B.L.S.	122.5	122.3	118.7
Wholesale prices (1947–1949 = 100) B.L.S.	119.7	119.0	118.9
Population (millions) Census	170.6	170.4	167.5
Unemployment (millions) Census	5.2	5.2	2.9
Employment (millions) Census	62.3	62.0	63.9
Personal Income (billion $) Commerce	341.4	341.7	340.2



DRAPER AUTOMATIC FILLING MAGAZINE

INCREASE *loom performance*

IMPROVE *cloth quality*

REDUCE *mill costs*

The Draper Automatic Filling Magazine, *bringing new automation to your weave room*, reduces filling handling to a minimum.

Lower labor costs, more continuous loom operation, cleaner yarns and fewer cloth seconds are direct advantages gained from the use of this magazine.

Your Draper representative will be glad to show you the many benefits that can be obtained from the Draper Automatic Filling Magazine.

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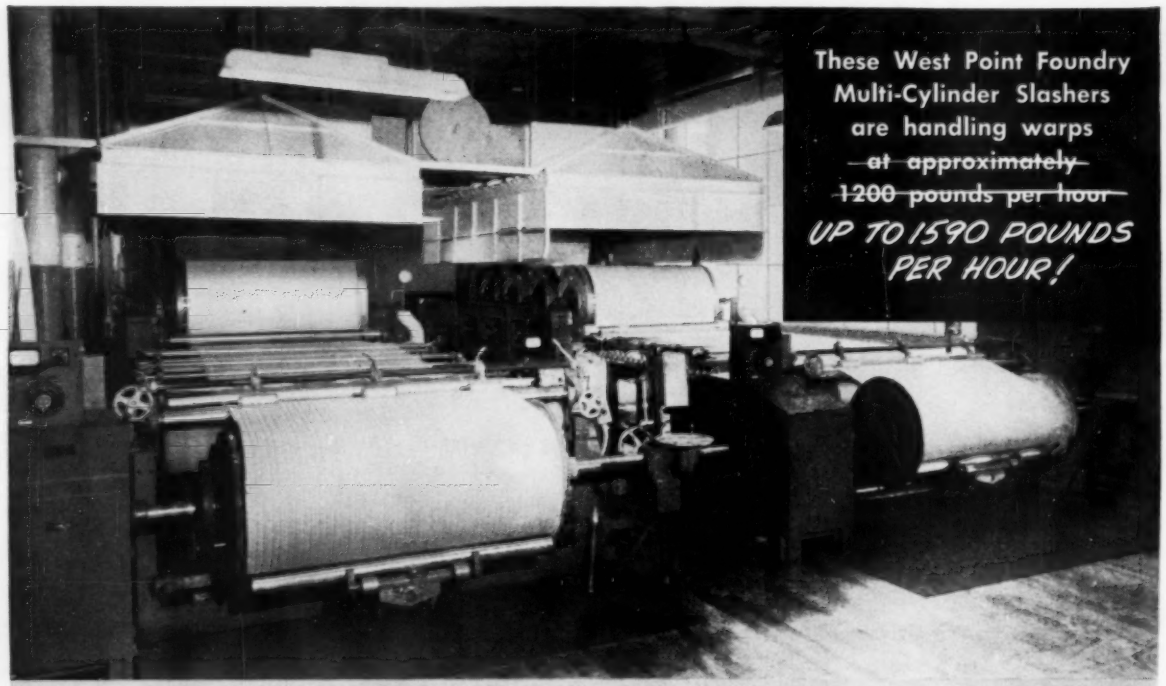
Slash more warp at LESS COST


These West Point Foundry Multi-Cylinder Slashers are handling warps
~~at approximately 1200 pounds per hour~~
UP TO 1590 POUNDS PER HOUR!

We used to talk about drying rates of 1200 pounds per hour. Now West Point Foundry MULTI-CYLINDER slashers have recorded drying rates of 1590 to 1635 pounds per hour on nine cylinders, and our 11-cylinder slashers have turned in record performances of 1850 and 2050 pounds per hour. Speeds of 110, 125, and 150 yards per minute are achieved regularly, and in one case, over 230 yards per minute without sacrifice of the high quality necessary in today's textile operations.

That's *high production*—the reason why *three* West Point Foundry MULTI-CYLINDER slashers replaced *seven* old 2-cylinder slashers in a recent installation. Put West Point to work for you!

Increase production... lower cost

MULTI-CYLINDER SLASHERS already in many mills have cut in half the number of slashers *and the floorspace* needed to handle a mill's production. And they continue to produce for years with dependable, high speed performance. They are built on heavy *machined* CAST IRON frames —built to take it! Another important advantage of the MULTI-CYLINDER SLASHER is its extreme versatility. It does an outstanding job on cotton, spun and filament synthetics. Telfon coating on entering cylinders makes it completely applicable to cotton. Multiple cylinders permit graduated temperature controls when required for synthetic warps. Superior *control* of tension throughout the slasher and *steam economy* are two more profit-making features. THIS SLASHER IS A MONEY-MAKER.

Remember—you have a choice with West Point because West Point Foundry makes both MULTI-CYLINDER and AIR-DRI® Slashers

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Foundry & Machine
Company

WEST POINT, GEORGIA

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Ann Knitting Mills, Inc., Lincolnton, N. C., is a new company with authorized capital stock of $100,000. The incorporators are Mercer W. Simmons, A. D. Allison, and H. B. Caldwell, all of Lincolnton.

Attalla Woolen Mills, Inc., Attalla, Ala., has been formed with authorized capital stock of $50,000.

Baxter Woolen Co., Somersworth, N. H., has moved its entire operations to the buildings once occupied by the former Cocheco Woolen Mfg. Co.

Beloit Hosiery Co., McMinnville, Tenn., has developed a casual sock that is 50% wool and 50% nylon. It features an alligator emblem on each leg.

Bigelow-Sanford Carpet Co., Thompsonville, Conn., has discontinued manufacture of velvet carpets and yarns. The closing of the velvet and yarn departments will leave the jacquard and axminister weave shops and the finishing, engineering, and research departments in operation.

Burlington Hosiery Co., New York, N. Y., a member organization of Burlington Industries, Greensboro, N. C., has acquired Jerks Socks, Inc., a distributor of men's and boys' hose. Jerks Socks will operate as a unit of Burlington Hosiery Co. There will be no change in the management or sales personnel.

Bristol Worsted Co., Bristol, R. I., has ceased operations. It manufactured worsted cloth for men's suitings.

Caledonian Dye Works, Philadelphia, Pa., has added two Hussong-Walker-Davis 100-lb. tape-dyeing machines and 40-, 80-, and 160-tube split-drum package-dyeing units.

Calhoun Mills, Calhoun Falls, S. C., has announced an expansion and improvement program costing $2,750,000. The weave room will be modernized, using X-2 looms costing $1,626,000.

P. H. HANES KNITTING CO., Winston-Salem, N. C., has started building a new knitted-cloth manufacturing plant in the western section of Winston-Salem, adjacent to the company's spinning plant. The plant is expected to be completed about Nov. 1.

Carlton Knitters, Inc., Hickory, N. C., has been organized and will manufacture infants' and misses' hosiery.

Casco Laces, Inc., Freeport, Me., has moved its two plants to Rhode Island. The plants have been closed since Nov. 22.

Clifton Mfg. Co., Clifton, S. C., has put its sixth plant into operation at Spartanburg, S. C. The plant, costing $850,000, will produce wide sheetings and print cloths. The entire operation will be concerned with weaving.

Court Knitting Mills, Inc., Brooklyn, N. Y., is a new company manufacturing cotton knits for infants' and children's outerwear, women's dresses and sportswear, and men's shirts.

Dana Warp Mills, Westbrook, Me., has been bought by Arnold W. Spencer and his brother Bertram. They have acquired an interest in Wright Spinning Co., also in Westbrook. Wright Spinning Co. will be reorganized as Western Spinning Co. and will occupy two floors of the Dana property.

Essex Mills, Essex, Conn., has announced that it will move to the company's plant in Pawtucket, R. I. The move will be gradual and will take place over a period of two or three months.

Indian Head Mills, Cordova, Ala., has sold a second surplus property at Douglasville, Ga., to a syndicate of local businessmen.

Kingston Mills, Cartersville, Ga., has completed an additional manufacturing area. The new building will house roving and winding machinery. It also includes an additional shipping dock.

Kiesling-Hess Finishing Co., Inc., Philadelphia, Pa., has been formed to handle stain-resistant and flameproof finishing for decorator fabrics in small yardages for decorator and fabric houses formerly handled by Schwarzwaelder Co., also of Philadelphia.

Lawrence Duck Co., Lawrence, Mass., has started closing its departments. It was one of four producers of a specialty duck for the paper industry.

Rabun Mills, Inc., Rabun Gap, Ga., a wholly owned subsidiary of James Lees & Sons Co., Bridgeport, Pa., has completed an addition that will provide space for the blending of wool and man-made

CONTINUED ON PAGE 146

CALENDAR

May

Underwear Institute, annual meeting, Hotel Biltmore, New York, N. Y., May 1

Alabama Textile Operating Executives, spring meeting, Thach Auditorium, Auburn, Ala., May 2 & 3

Textile Market Research Conference, sponsored by National Cotton Council, Hotel Statler, New York, N. Y., May 6 & 7

Canadian Textile Conference, Queen Elizabeth Hotel, Montreal, Que., May 6 to 8

AATT, Della Robbia Room, Vanderbilt Hotel, New York, N. Y., May 7

American Cotton Manufacturers Institute's Fiber-Testing Laboratory, open house, Clemson College, S. C., May 7 & 8

AATCC, northern New England section, Lowell Technological Institute, Lowell, Mass., May 9

National Packaging Exposition, sponsored by American Management Association, New York Coliseum, New York, N. Y., May 26 to 30

June

AATT, Della Robbia Room, Vanderbilt Hotel, New York, N. Y., June 4

Tufted Textile Manufacturers Association, annual convention, Daytona Plaza Hotel, Daytona Beach, Fla., June 4 to 7

National Materials Handling Exposition, Public Auditorium, Cleveland, Ohio, June 9 to 12

Advanced course in Quality Control by Statistical Methods, Purdue University, Lafayette, Ind., June 10 to 20

National Conference on Materials Handling, sponsored by American Society of Mechanical Engineers, to be held concurrently with the National Materials Handling Exposition, Public Auditorium, Cleveland, Ohio, June 9 to 12

Gordon Research Conference on Textiles; Colby Junior College, New London, N. H.; New Hampton School, New Hampton, N. H.; Kimball Union Academy, Meriden, N. H., June 9 to August 29

Woolen-Yarn Manufacturing Course for woolen-mill trainees, second hands, and similar personnel, sponsored by Davis & Furber, N. Andover, Mass., Lowell Technological Institute, Lowell, Mass., June 16 to 27

American Society for Testing Materials, annual meeting, Hotels Statler and Sheraton-Plaza, Boston, Mass., June 22 to 27

August

Massachusetts Institute of Technology, summer program, Techniques in Textile Research, Massachusetts Institute of Technology, Cambridge, Mass., Aug. 18 to 22

September

The Fiber Society, Inc., fall meeting, Queen Elizabeth Hotel, Montreal, Que., Sept. 9 & 10

Combed Yarn Spinners Association, annual meeting, The Cloister, Sea Island, Ga., Sept. 11 & 12

AATCC, Piedmont Section, Hotel Charlotte, Charlotte, N. C., Sept. 19 & 20

Textile Quality Control Association, fall meeting, Grove Park Inn, Asheville, N. C., Sept. 25 & 26

October

National Cotton Council, Chemical Finishing Conference, Washington, D. C., Oct. 1 & 2

Southern Textile Exposition, Textile Hall, Greenville, S. C., Oct. 6 to 10

Georgia Textile Operating Executives, fall meeting, A. French Textile School, Georgia Institute of Technology, Atlanta, Ga., Oct. 11

American Society for Testing Materials, Committee D-13, fall meeting, Sheraton-McAlpin Hotel, New York, N. Y., Oct. 14 to 17

Textile Recorder International Textile Machinery & Accessories Exhibition, Belle Vue, Manchester, England, Oct. 15 to 25

Alabama Textile Operating Executives, fall meeting, Thach Auditorium, Auburn Ala., Oct. 25

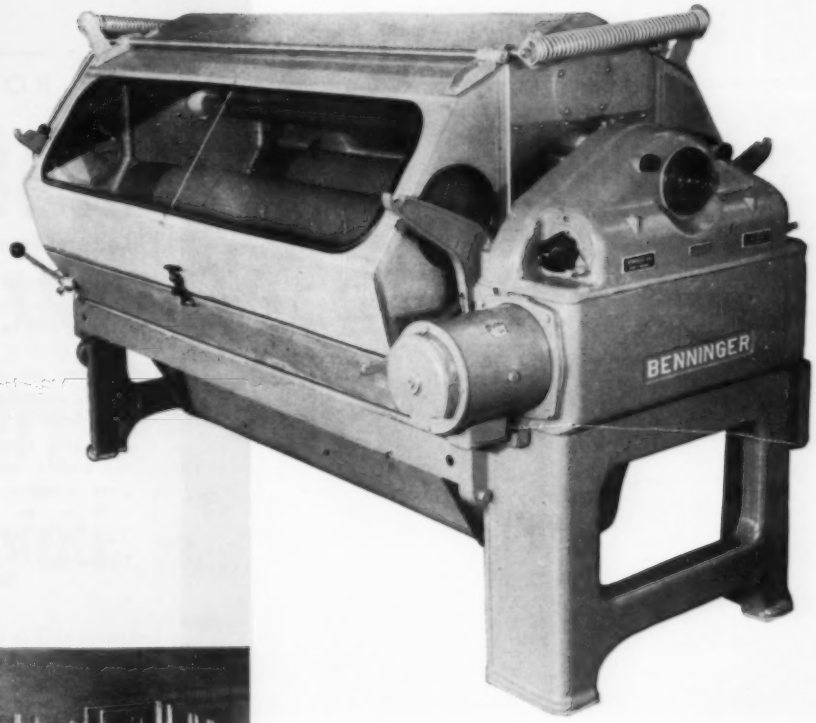
Carded Yarn Association, annual meeting, The Homestead, Hot Springs, Va., Oct. 28 to 31

AATCC, national convention, Hotel Conrad Hilton, Chicago, Oct. 30 to Nov. 1

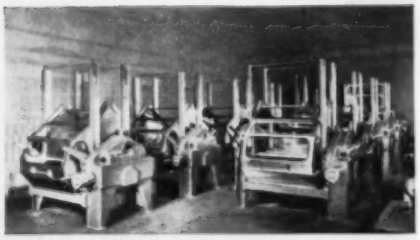
November

Textile Seminar, sponsored by University of Georgia, Div. of Clothing and Textiles in Extension, Teaching, Research, Georgia Center for Continuing Education, Athens, Ga., Nov. 7 & 8

Narrow Fabrics Institute, annual meeting, Hotel Roosevelt, New York, N. Y., Nov. 17 to 19



Latest Benninger Dye Jig, Model LFM. Enclosed hood keeps temperature of cloth uniform from center-to-selvedge and end-to-end; prevents oxidation of cloth selvedge and eliminates fogging of dyehouse.



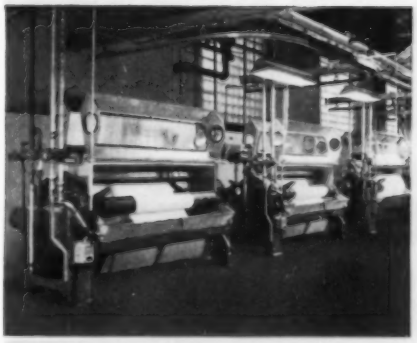
Erection floor view showing eleven Benninger Dye Jigs ready for shipment.

IT'S BENNINGER for high-production, automatic jig dyeing

In Swiss-made Benninger Dye Jigs, sold and serviced by Butterworth, you get all the automatic features that mean absolutely reliable dyeing results, high-production, and minimum costs.

- Creaseless runs on any kind of cloth – entirely frictionless contact between expanding rollers and the cloth; adjustable controls keep cloth under slight but constant tension.
- Cloth-running speeds practically constant – reversing and stopping device, and self-acting passage counter, both completely automatic. No stop and start!
- Cuts dyehouse time – repeated squeezing out of the fabric during or after desizing, boiling, rinsing, dyeing, and soaping intensifies the chemical reactions and curtails the time normally required for these single operations.
- Easy to operate, even for inexperienced dyehouse personnel – one man can operate up to six machines, depending on type of cloth and dyeing process employed.

For full details on Benninger Dye Jigs, call or write us today.



Installation of six Benninger Dye Jigs in warp-knitting mill in Pennsylvania

H. W. BUTTERWORTH & SONS COMPANY
A Division of Van Norman Industries, Inc.
Bethayres, Pa.

Member of
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BUTTERWORTH

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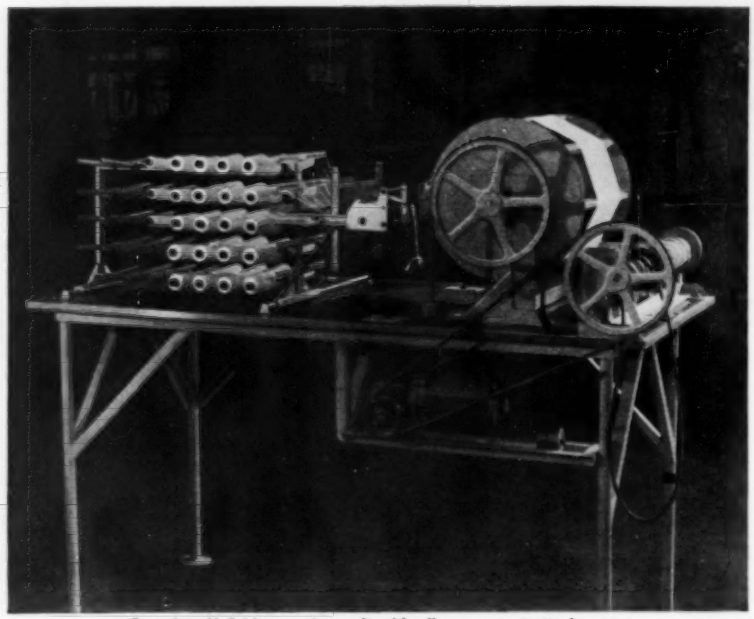
McBRIDE CREEL CORNER



Complete McBride warping unit with all component attachments designed especially for Laboratory and Design Departments.

How to Eliminate Costly Hand Warping Methods in Your Laboratory and Design Departments

This new McBride warping unit is unique. It is designed specifically to meet the needs of laboratories, design departments, textile schools, fabric stylists, and other uses where production runs do not occur. A completely modern unit, it eliminates costly hand methods and provides more uniform warps.

The unit is complete with creel, warping reel, and beaming head. The entire unit is mounted on a platform which can be supplied with or without steel legs. A creel for the unit can be supplied for revolving draw off, as shown, for yarn supplied on tubes and spools. For over-end delivery of yarn creel is complete with tensions, bowed spring spindles, universal cone holders, and pirn adapters to permit ready adaptability to virtually any type package.

The Revolving Draw Off Creel is movable from side to side to align with sections required for the warp. A movable Hack Stand is provided for the creel with over-end draw to align with sections required for the warp.

The Reel as well as the beaming attachment is power driven.

Motors available in 110, 220, or 440 volts with convenient extension cord.

CREELS for every purpose, CONE HOLDERS, STOP MOTIONS, TENSION CONTROLS, WARP BEAMS, FLANGES, CARPET INSPECTION TABLES, METAL AND WOOD ROLLS.

COMPLETE ENGINEERING SERVICE IS PART OF EVERY McBRIDE INSTALLATION

Mc BRIDE

COTTMAN AVE. & WISSINOMING ST.
PHILADELPHIA 35, PENNSYLVANIA

IN THE MIDWEST:
ALBERT R. BREEN
80 E. JACKSON AVENUE
CHICAGO 4, ILLINOIS

IN CANADA:
HUGH WILLIAMS & CO.
27 WELLINGTON STREET
E. TORONTO 1, ONTARIO

Letters From Readers

We welcome your comments. Whether you agree or disagree, with us or anybody else, we will be glad to have you air your views.

Unless you ask us not to, we will use your name and company connections when your letter is printed. If you prefer to have your opinions appear unsigned, we will respect your confidence by using only a set of initials.

Write to Editor, Round Table, TEXTILE WORLD, 201 E. Coffee St., Greenville, S. C.

MORE ABOUT COTTON STORAGE

Dear Editor:

In the Questions and Answers section of the March issue, there was an item on outdoor storage of cotton. We have stored cotton outdoors successfully on a number of occasions.

A platform of rough lumber or pine poles is laid on the ground in a well-drained area and the cotton is stacked in square form, 500 bales per stack.

Rafters are laid across the top of the stack and covered with sheet metal. The sides of the stacks are left open, and the bales are not covered with anything other than the conventional bagging.

We have had as much as 10,000 bales of cotton stored in this manner for several months at a time without any noticeable damage to the cotton or ill effects in spinning, weaving, or finishing.

J. H. C.

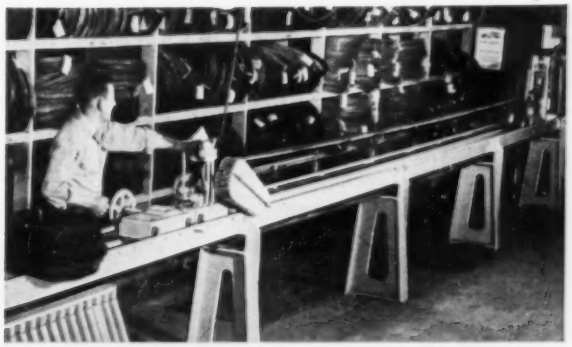
Spartanburg, S. C.

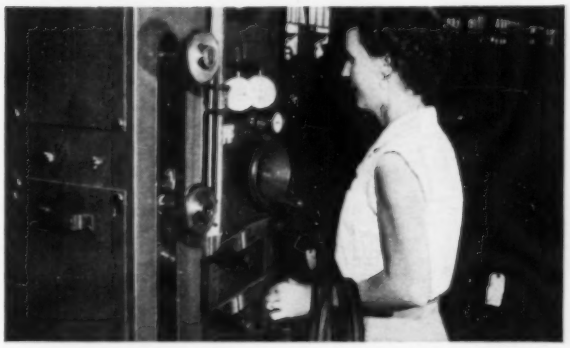
CORRECT TERMINOLOGY SHOULD ALWAYS BE USED

Dear Editor:

In a Kink that I sent you recently, the wording in the title was changed from "thread cutting" to "end breaking." The item is mainly for the weave shop, and in weave-shop lingo the

Only V-Belts with the Green Seal give you





Precise measurement of every Goodyear V-Belt and coding to unusually fine tolerances prepare the way for more exact matching of sets—at factory, warehouse, or by distributors. The built-in quality of Dimensional Stability assures that belts stay matched, for life.

dimensional stability – Unsurpassed steel cables or exclusive Triple-Tempered (3-T) Cords provide true dimensional stability from factory to drive.

– that assures you of –

matched sets that stay matched – Sets of belts are matched to the closest standards. And they stay matched under all conditions of storage.

minimum stretch on the drives – Belts on multiple drives work as a team. You eliminate "loafers" – or overworking any of the belts.

– and you also get –

high modulus – You get the greatest possible resistance to shock-loads. You're protected from power loss due to "creep."

friction balance – Covers have the ideal coefficient of friction. No sticking or grabbing in the grooves. And no dusting.

mildew immunity – You're safe from the effects of moisture – in use or in storage. Stand-by belts are always ready for use – no matter how long you keep them.

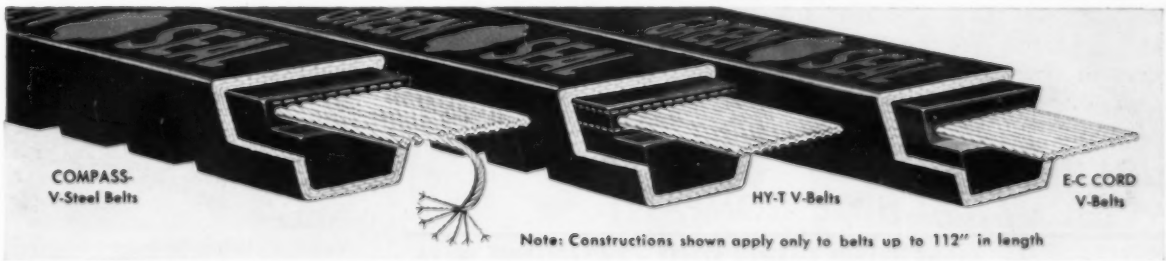
– and all that pays off in –

–maximum, trouble-free horsepower hours–at minimum cost – on any and every drive in your plant. It's easy to see why you should see your Goodyear Distributor for details. Or write to Goodyear, Industrial Products Division, Lincoln 2, Nebraska, or Akron 16, Ohio.

DIMENSIONALLY STABLE V-BELTS with the GREEN SEAL by

GOODYEAR

THE GREATEST NAME IN RUBBER



Note: Constructions shown apply only to belts up to 112" in length

Watch "Goodyear Theater" on TV—every other Monday, 9:30 P. M., E. D. T.

Compass, E-C Cord, Hy-T, Green Seal–T. M.'s The Goodyear Tire & Rubber Company, Akron, Ohio

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MODERN DYEHOUSE EQUIPMENT

THE DEPENDABLE KWG SKEIN DYEING MACHINE

KWG Double Reel Skein Dyeing Machine —all stainless steel unit built in capacities to 1000 pounds.

FOR QUALITY DYEING

WITHIN INCREASED BUT MORE NORMAL TEMPERATURE and PRESSURE LIMITS

Perfection in dyeing—for natural and the new synthetic fibers—is yours with KWG Skein Dyeing machines. Rugged construction . . . improved **'Ferris-Wheel' performance . . . give you the penetration and evenness of color**—the permanence of tone—for that extra measure of sales appeal—without concern for costly high-temperature, high-pressure methods. Dual-operations possible including scouring, dyeing and shrink-proofing, or scouring, bottom bleaching and dyeing of pastel shades.

You can point the way to extra sales . . . extra profits . . . today by writing Klauder Weldon Giles. A KWG representative will be glad to survey your needs. If necessary, he'll design special equipment to your specifications. There's no obligation.

Klauder Weldon Giles MACHINE COMPANY

ADAMS AVENUE & LEIPER STREET • PHILADELPHIA 24, PA.

thread is referred to as being cut even though it may be broken.

Also, the warp thread is referred to as an end until it reaches the loom; and then it is called a thread. For instance, you have ends down or broken ends in spinning; but in weaving the correct terminology is threads out or broken threads.

Although the distinction between the words may be slight, it is best to use correct terminology because otherwise the true meaning of some of the statements may be misunderstood by the very people they are addressed to.

O. J. DUCHARME

Pascoag, R. I.

MACHINES IN THE HOME MAKE TOUGH COMPETITION

Dear Editor:

I noticed an item in a daily newspaper that shows how far some countries will go to make their textiles cheaper and more competitive. The item stated that in the Prato District of Italy, 4,862 looms were moved from factories and located in homes and outbuildings.

The looms, weaving woolen fabrics, are operated up to 16 hrs. per day. Such operations, according to the report, enable the manufacturers to evade some taxes and other overhead costs.

We had a similar operation in this country during the first years of the commercialized tufting industry. Tufted products were originally handcrafted by housewives. When the first tufting machines were developed, many of them were installed in homes so that the operators could do their housework and still produce bedspreads, mats, robes, and novelty tufted items.

The practice of installing tufting machines in homes has been outlawed. Most of the tufting is now done in plants equipped with highly developed machines.

The question is, can low-paid, part-time workers, even when equipped with modern machinery, compete with centralized, integrated factories?

O. A. H.

Greenville, S. C.

TEXTILE PRICING IS NOT REALISTIC

Dear Editor:

A yard of cloth is the biggest bargain to be found in America today. While

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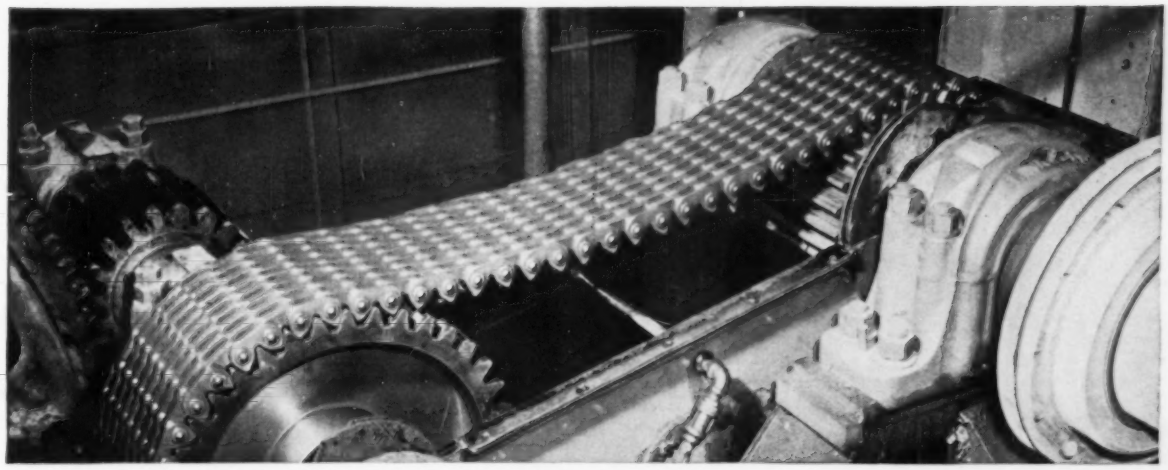


HIGH SPEED. Traveling at speeds as high as 5000 fpm, silent chain drives readily accommodate the extreme peak loads without losing their better-than-98% efficiency.

How LINK-BELT silent chain drives survive industry's roughest requirements

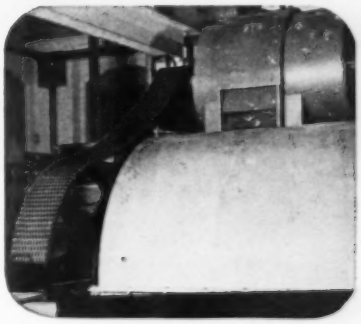
Would your drives do as well?

On applications like these and scores more, no other type of drive is the equal of Link-Belt silent chain. Ask your Link-Belt office or authorized stock-carrying distributor for comprehensive 88-page Book 2425.

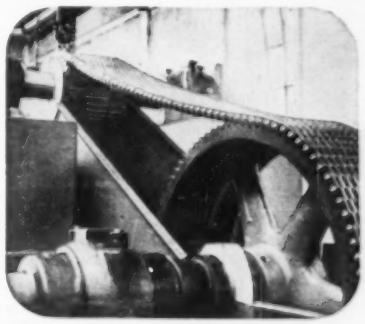
LINK-BELT

SILVERSTREAK SILENT CHAIN DRIVES

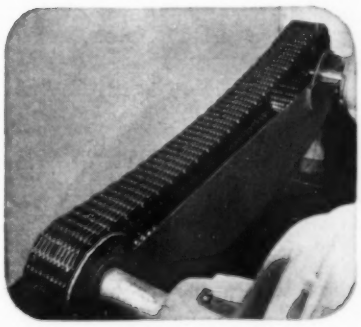
LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants, Sales Offices, Stock Carrying Factory Branch Stores and Distributors in All Principal Cities. Export Office: New York 7; Canada, Scarboro (Toronto 13); Australia, Marrickville (Sydney), N.S.W.; South Africa, Springs. Representatives Throughout the World. 14.679



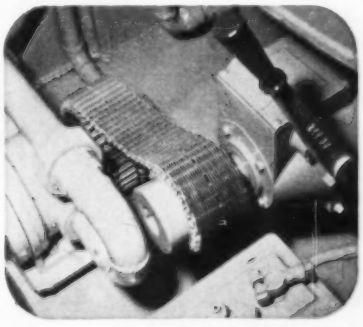
LARGE OR SMALL HP. On a 300 hp drive like this or at fractional hp, silent chain is always lower in ultimate cost.



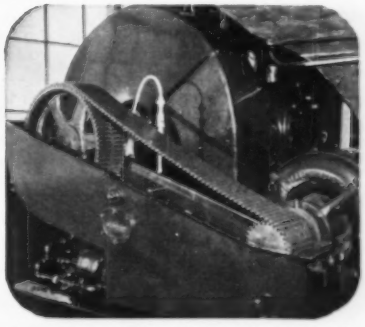
LARGE RATIOS. Link-Belt silent chain operates efficiently on extremely short centers at ratios as high as 10-to-1.



ADVERSE OPERATING CONDITIONS. Heat, humidity and cold have little effect on Link-Belt silent chain drive performance.



LIMITED SPACE. Easy to assemble in close quarters, Link-Belt silent chain permits built-in drives, compact housings.



LONG LIFE. This drive is 16 years old and still going strong. Not unusual—many others have lasted twice that long.

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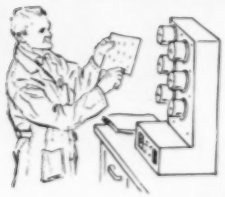
NEW

Random Tumble Pilling Tester

...by Atlas



Atlas Random Tumble Pilling Tester Model PT-6. Other models with four and two chambers available.

A New Laboratory Instrument for Evaluating the Pilling and Fuzzing Characteristics of All Types of Fabrics. Will test up to 18 samples per hour.

Results obtained correlate well with actual end use performance in respect to the number, type and size of pills as well as in surface distortion and general overall appearance.

Duration of tests is controlled by an electric timer which may be set to automatically stop the test at any preselected time from one minute to 30 minutes. In action, specimens are constantly flexed and abraded multidirectionally by being rubbed against the neoprene liner as well as against the other fabric specimens.

Specimens are cut 4 3/16 inches square at approximately a 45° bias to warp and filling direction for woven fabrics or to wales and course direction for knitted fabrics.

Each cylindrical chamber is 5.75 inches in diameter by 6 inches deep. Impellers are 4.75 inches long and rotate at 1200 R.P.M. Powered from 115 V. 50 or 60 Cycle A.C. ordinary plug outlet.

FADE-OMETER®

used all over the world as the standard testing machine for determining the action of sunlight on materials.

LAUNDER-OMETER®

Standard testing machine of the A.A. T.C.C. for color-fastness and bleeding, shrinking, resistance to washing, testing dyes, soaps and detergents.

ATLAS ELECTRIC DEVICES CO.

4114 N. Ravenswood Ave., Chicago 13, Ill., U.S.A.

Fade-Ometer® • Launder-Ometer® • Weather-Ometer® • Accelerator® • Scorch Tester

the cost of other commodities has steadily increased, the price of cloth has been held down.

Cotton products are 10.1% cheaper than they were in 1947-49, but all industrial commodities are up 25.7%. Automobile prices have increased 35.5% in this 10-year period.

Competition is the main factor that has held down the price of textiles. The manufacturers of cloth must compete with one another, with imports from other countries, and with paper, plastics, and other cloth substitutes.

When steel workers get a raise in wages or when anything else causes the cost of producing a ton of steel to rise, the price of steel is also raised to absorb the extra cost. Immediately, the price of automobiles, refrigerators, structural steels, washing machines, and other products made chiefly of steel are raised, and the cost is passed on to the consumer without any serious upset in production or sales.

If sales do slacken for a time, the steel and steel-fabricating industries curtail production—but they don't cut prices.

On the other hand, the textile industry builds up big inventories of cloth that it is often forced to sell at a loss. The mills stretch out workloads, pay substandard wages, and cut every possible corner in management, research, promotion, and production to try to cut the cost of a yard of cloth another fraction of a cent.

In one of its best years, based on sales, the automobile industry raised the price of all models. Some of the lower-priced cars had a price increase of $200, but the customers wanted new cars and they bought them.

Why can't the textile industry adopt realistic pricing policies? No one would seriously object to paying a nickel more for a shirt or a few cents extra for enough material to make a dress or blouse.

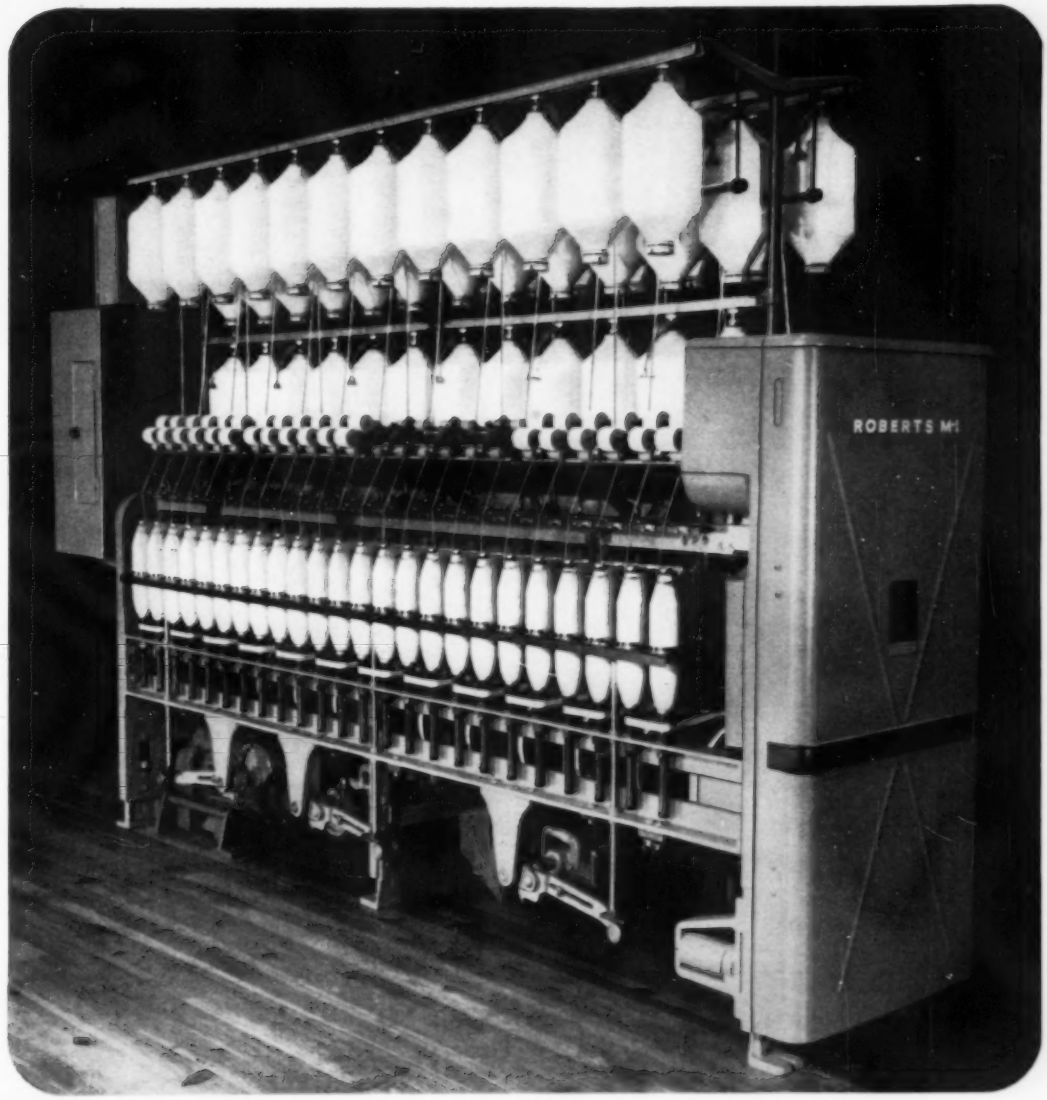
If the price of cloth could be increased only slightly, the mills would have operating capital to do more research and promotion, to pay enough to attract high-quality workers, supervisors, and management, and to spend for more improved methods and machinery.

The consumers would gain because they would get a better product. In many cases, they would get cloth made of better materials, processed slower and with fewer defects.

The industry has many problems, but it seems that a realistic pricing policy would go a long way toward solving a lot of them.

W. B. C.

Greenville, S. C.



ROBERTS SPINNING

ALL NEW—ALL BALL BEARING ROBERTS M-1 SPINNING FRAME

The benefits of BIG PACKAGE SPINNING are available **AT $32 TO $40 PER SPINDLE INSTALLED** in your mill, depending on gauge and frame lengths. These frames produce better yarns at higher front roll speeds and put more ounces of yarn on the bobbin.

More than 250 Roberts narrow frames have been installed in mills during the past eighteen months.

ROBERTS COMPANY
SANFORD, NORTH CAROLINA

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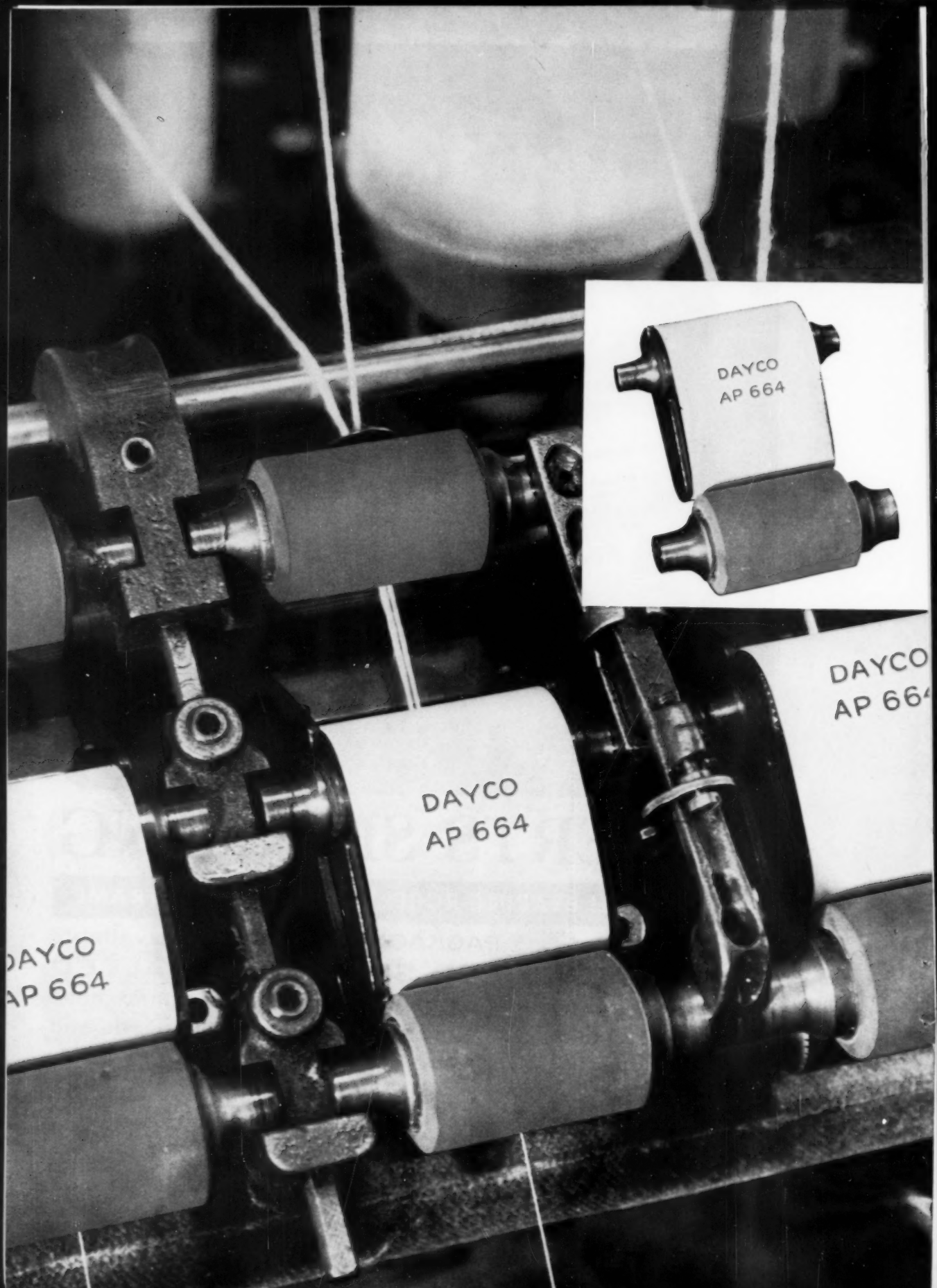

DAYCO
AP 664
DAYCO
AP 664
DAYCO
AP 664
DAYCO
AP 664

Cut out lost time !

by using Dayco Cots and Aprons

PROFITS ARE MADE . . . or lost . . . right there in your drafting area. Put up with slow Monday morning starts, excessive ends down and overloaded clearer boards, and there go the profits. On the other hand, if you equip your drafting area with Dayco Aprons and Cots, you'll count out more production . . . with fewer man-hours . . . because you've eliminated the principal causes of slow-ups and down time.

FASTER START-UPS are yours with Dayco Aprons and Cots because they won't adhere to fibers . . . no matter how long you've been shut down. By the same token, they're unaffected by lubricants and oils in the natural fiber and, above all, stay dry even when the temperature and humidity get out of hand!

COUNT THE YARDS at the end of the shift and you'll be surprised at how many more you've run. Because Dayco Aprons and Cots have just the right coefficient of friction, they have a smoother, more economical drawing action that leaves all the long fibers in the yarn instead of depositing them on the clearer board. The result is stronger yarn, fewer ends down, and more yards per shift.

LONGER LIFE means that over the months, you'll find the Dayco Combination gives hundreds of hours more service. Dayco Aprons won't curl, become sticky or groove . . . won't stretch or take a permanent set. Neither will Dayco Cots pit, groove, or become glazed from hard wear. Naturally, with the longer life of the Dayco Combination, you'll save many hours of replacement time.

Take a second look at your profits and you'll want your Dayco representative to arrange a test with the Dayco Combination the next time he calls. Or write The Dayton Rubber Co., Textile Division, 401 S. C. National Bank Building, Greenville, South Carolina.

Dayton Rubber

Dayco and Thorobred Textile Products for Better Spinning and Weaving

OVERSEAS PLANT, THE DAYTON RUBBER CO. LTD., DUNDEE, SCOTLAND

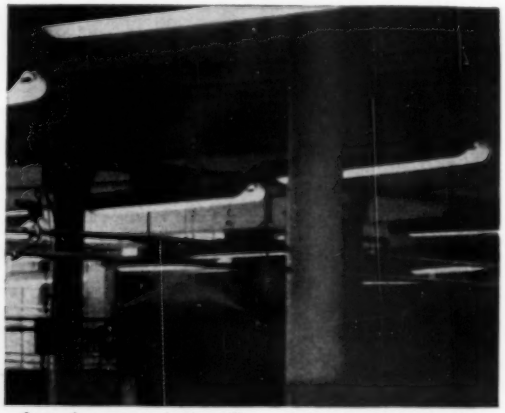
Together . . . for over 50 years!

Pepperell Manufacturing Company in textiles; American Moistening Company in air conditioning . . . *both* are well-known not only to the trade, but to each other! For it was over 50 years ago that the first Amco installation was made in a Pepperell mill. Moreover, it's a business association which has continued active right up to the present.

Amco's developments in improved methods of air conditioning today include a full list of carefully engineered devices, as well as *all* types of systems. So whether *your* requirements are for humidification alone; or in combination with cooling, such as in a ductless evaporative cooling system; or for a unit dry-duct system; or central station air conditioning . . . Amco can offer you the *right* system, composed of quality components, and based on engineering backed by seventy years experience in textile air conditioning.

Call on Amco for reliable advice. Amco engineers will be glad to suggest a solution to any air conditioning problem you may have. There is absolutely no obligation.

Amco cooling and ventilating installation in spinning room of Pepperell plant.

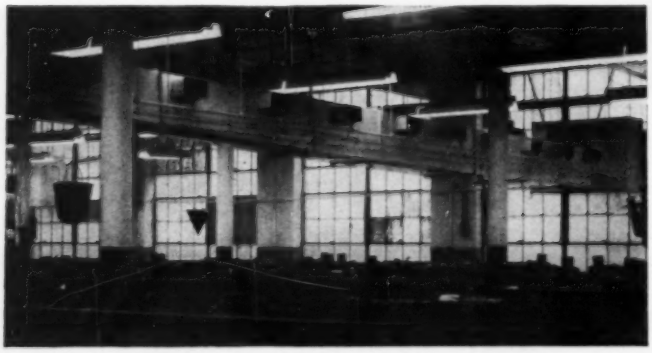


Some departments in the mill use straight humidification with Amco atomizers.

AMCO

AIR CONDITIONING SYSTEMS

AMERICAN MOISTENING CO. • CLEVELAND, NORTH CAROLINA
BRANCHES:
ATLANTA, GA. • PROVIDENCE, R. I. • TORONTO, ONT.



Amco unit dry-duct system installed in weave room.

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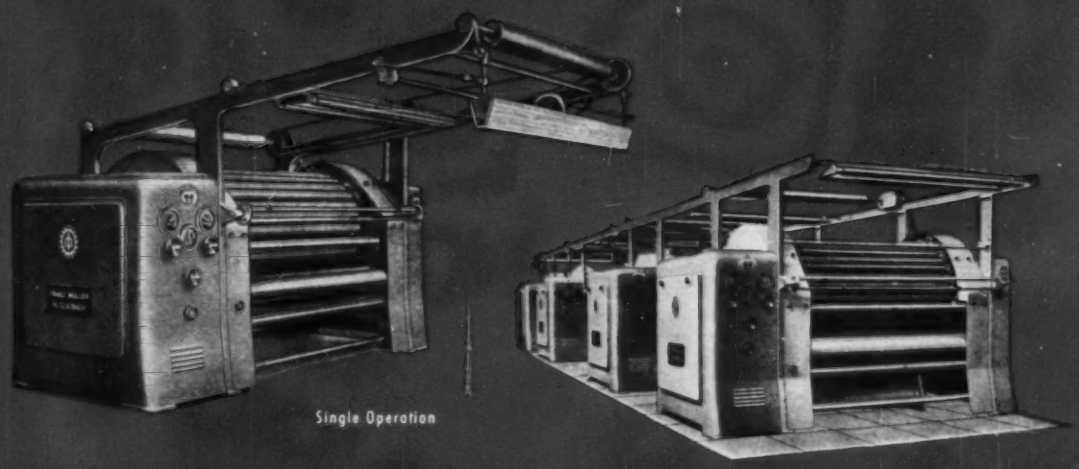
WHY 80 ? MAYBE 30 ARE SUFFICIENT



Single Operation

Tandem Operation

THE RESULT OF 100 YEARS EXPERIENCE

30 of these high speed nappers replaced 80 standard nappers in a North Carolina mill

for reasons of:

- New Processing Methods
- Unequalled Finish
- Highest Production
- Labor Savings

Our agents and service engineers are in the field. Contact them, they'll give you advice.

SOUTHERN U.S.:
PARROTT & BALLENTINE,
610 S. CAROLINA
NATIONAL BANK BUILDING
GREENVILLE, S.C.

NORTHERN U.S.:
TEXTILE MACHINERY
IMPORT CO.
277 NORTH AVENUE
NEW ROCHELLE, N.Y.

COMBINE OF TEXTILE MACHINERY MANUFACTURERS

FRANZ MÜLLER · MASCHINENFABRIK · M.GLADBACH (WESTERN GERMANY)

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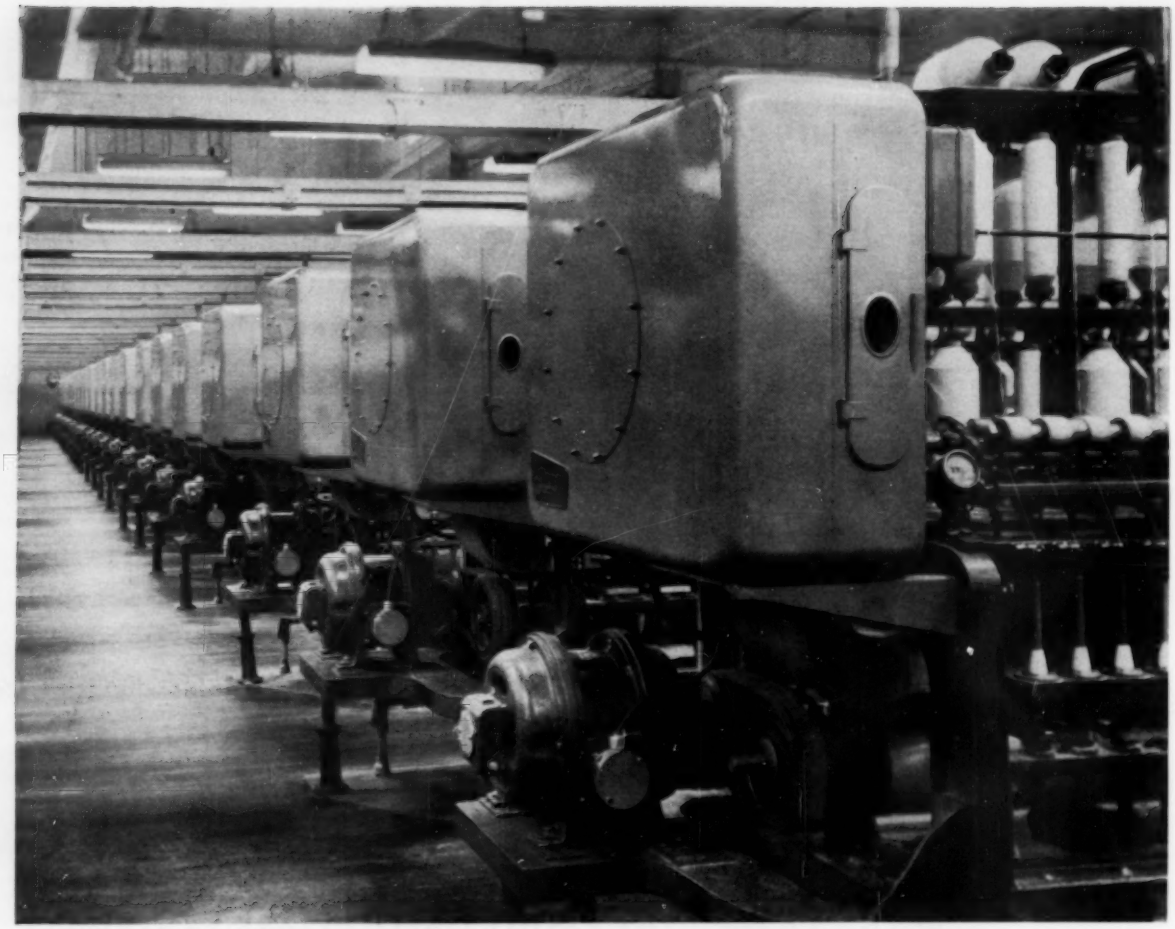

JOANNA COTTON MILLS REPORTS

specific savings and 100% performance efficiency with

BAHNSON COLLECTO-VAC

"After conducting comparative studies on available end collection systems, we decided unanimously in favor of Bahnson Collecto-Vac," says Mr. J. L. Delany, General Superintendent at Joanna Cotton Mills, Joanna, S. C. "Our Bahnson Collecto-Vac is now in its 2nd year of operation in the mill. It has given us 100% trouble-free service. Since installing Collecto-Vac we have fewer ends down and have increased our production. Our yarn is of better quality; slubs and gouts are minimized. Production costs are lower. In addition, Collecto-Vac picks up considerable flying lint, keeping both frames and rooms cleaner."

Let a Bahnson representative show you how Collecto-Vac can give you extra value. Write Bahnson today.

Bahnson
COMPANY
WINSTON-SALEM, N. C., U. S. A.

ONE SOURCE *for complete modernization equipment.*

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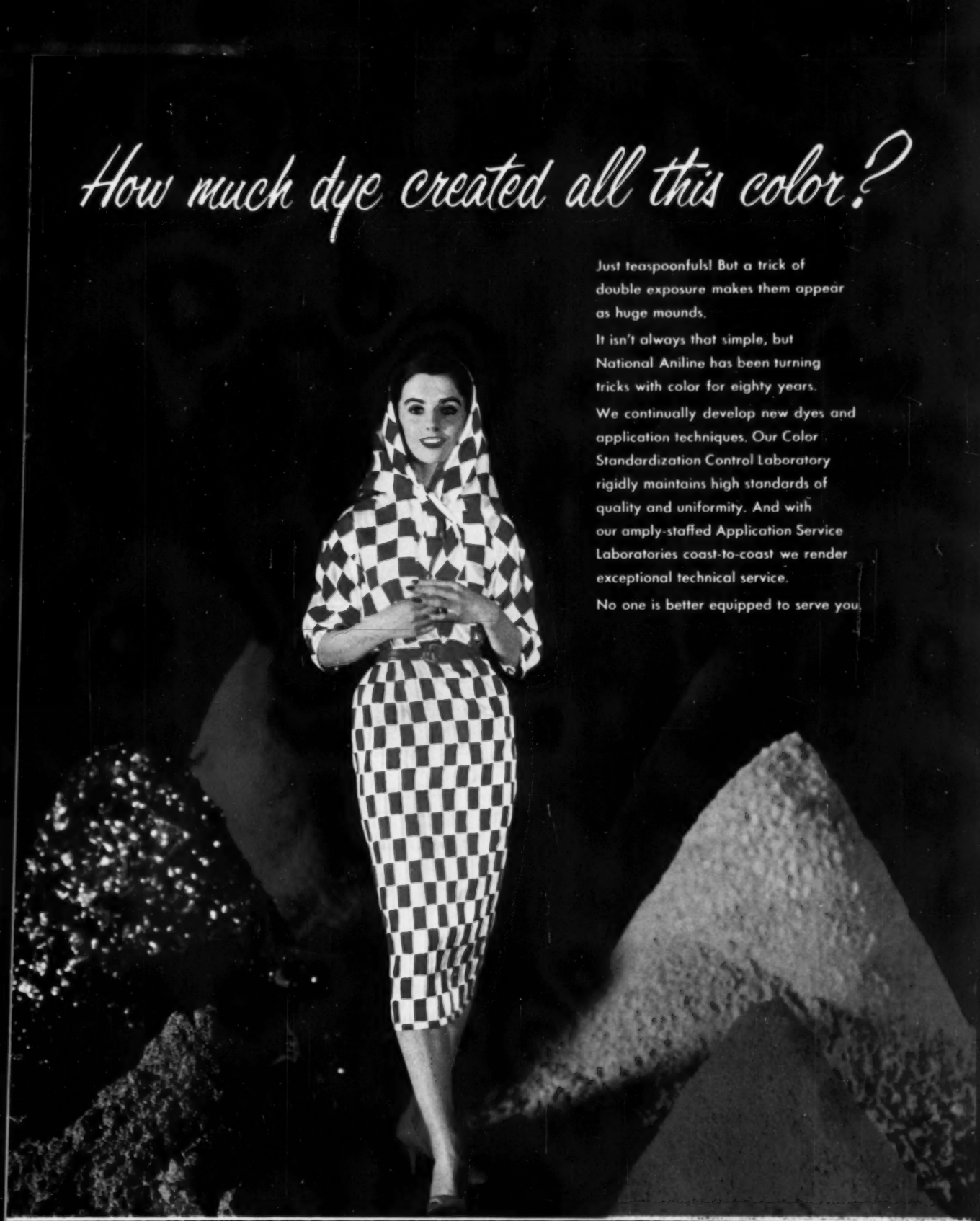
How much dye created all this color?



Just teaspoonfuls! But a trick of double exposure makes them appear as huge mounds.

It isn't always that simple, but National Aniline has been turning tricks with color for eighty years.

We continually develop new dyes and application techniques. Our Color Standardization Control Laboratory rigidly maintains high standards of quality and uniformity. And with our amply-staffed Application Service Laboratories coast-to-coast we render exceptional technical service.

No one is better equipped to serve you.

NATIONAL ANILINE DIVISION ALLIED CHEMICAL & DYE CORPORATION

40 Rector St., New York 6, N. Y. • Akron Atlanta Boston Charlotte Chattanooga Chicago Greensboro Los Angeles New Orleans Philadelphia Portland, Ore. Providence San Francisco Toronto

Allied Chemical

Automatic Winders for Rewound Filling

to take advantage of large package spinning, more yarn on filling bobbins, more uniform bunches, better weaving bobbins, and inspected yarn, all of which go to make a better fabric.

Abbott Traveling Spindle Package Winders

Automatic Cone or Tube Winders for warping, dyeing, twisting, quilling, sales.

Can be equipped with any one of a variety of slub catchers and inspection devices.

Production up to 1000 bobbins per hour per operator.

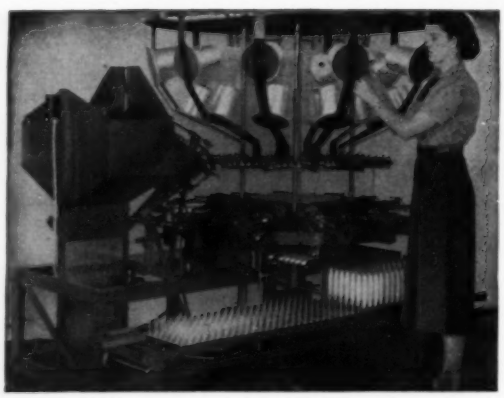
Abbott Traveling Spindle Automatic Quillers

For winding coarse cotton, worsted, woolen yarns, etc., equipped to doff automatically into baskets, or stack automatically into boxes.

Abbott Model II High Speed Automatic Quillers OVER 10,000 RPM

For winding fine cotton, spun synthetics, filament rayon and nylon, etc. with automatic pinboard attachment or wide belt inspection conveyor, or bobbin stacker.

Production up to 2500 bobbins per hour per operator.



Abbott Fully Automatic Radial Quiller

For smaller lots and widely diversified mills.

For winding cotton, spun rayon, filament rayon, worsted, wool, etc.

Can be arranged to deliver bobbins to Pinboard Attachment, or into baskets, or into wide belt conveyor.

One operator can run several machines producing up to 2000 bobbins per hour per operator.

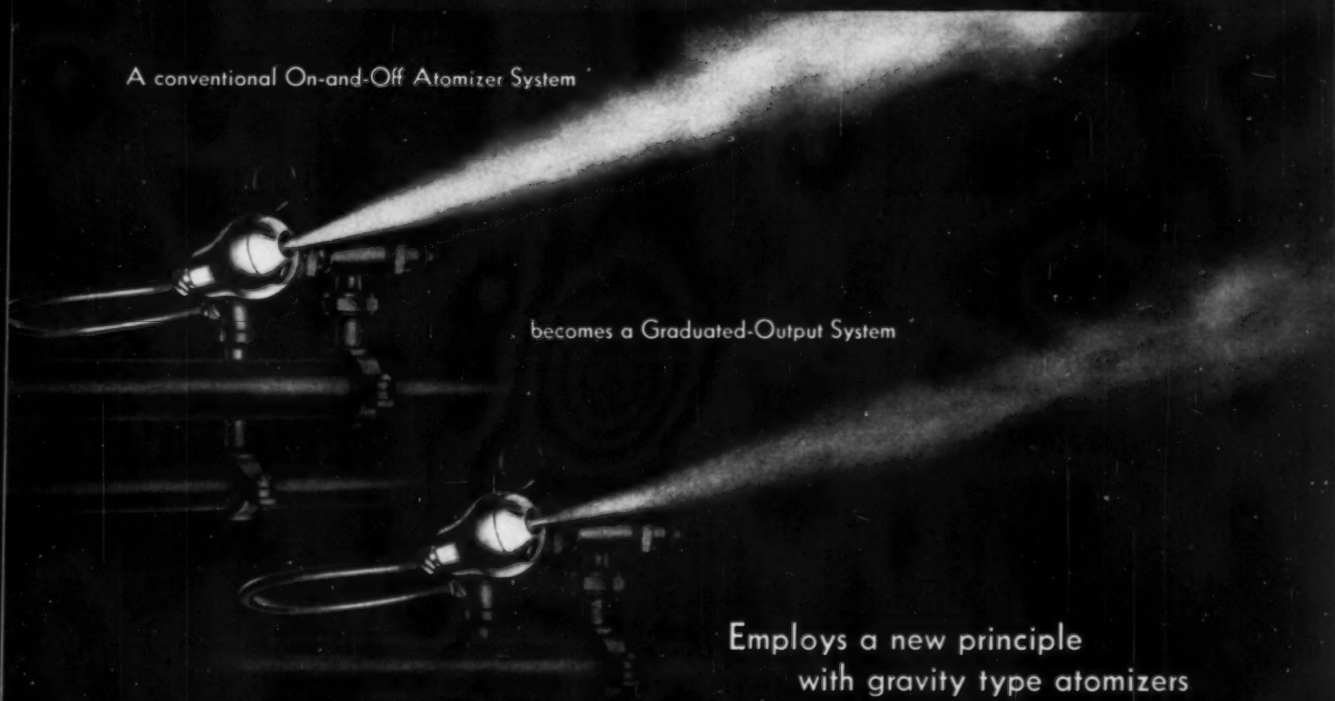
Can be equipped with measured yardage device for two-shuttle looms.

ABBOTT MACHINE CO., INC.

WILTON, NEW HAMPSHIRE

SOUTHERN SALES AND SERVICE: GREENVILLE, S. C.

GraduVac Humidification



Employs a new principle with gravity type atomizers

Moisture output graduated automatically

Better spray quality

More even humidity

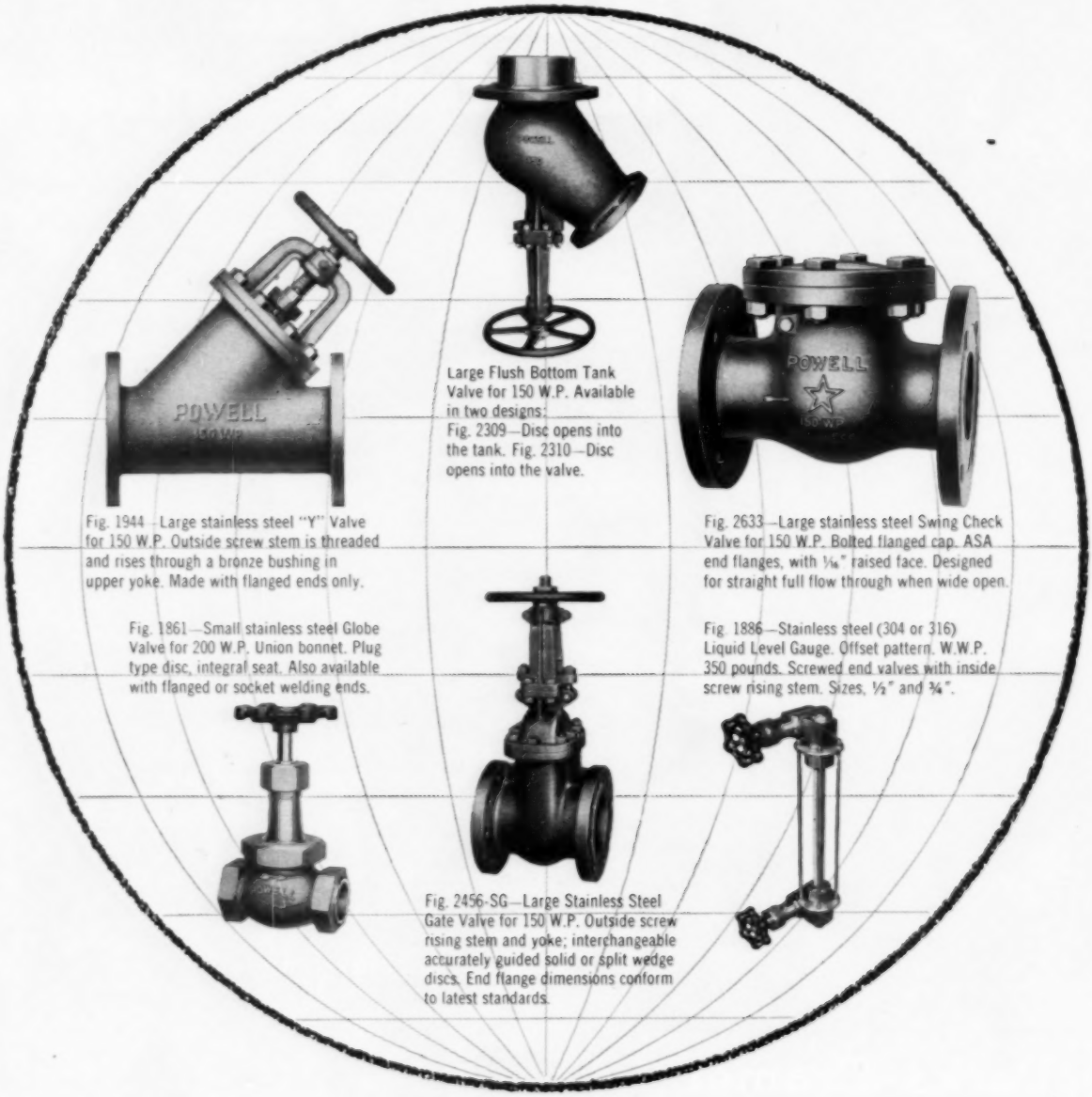
Parks-Cramer

CERTIFIED CLIMATE SYSTEMS

For Bulletin H45 on GraduVac write Parks-Cramer, Fitchburg, Mass. or Charlotte, N. C.

POWELL

world's largest family of valves



Large Flush Bottom Tank Valve for 150 W.P. Available in two designs: Fig. 2309—Disc opens into the tank. Fig. 2310—Disc opens into the valve.

Fig. 1944—Large stainless steel "Y" Valve for 150 W.P. Outside screw stem is threaded and rises through a bronze bushing in upper yoke. Made with flanged ends only.

Fig. 2633—Large stainless steel Swing Check Valve for 150 W.P. Bolted flanged cap. ASA end flanges, with 1/16" raised face. Designed for straight full flow through when wide open.

Fig. 1861—Small stainless steel Globe Valve for 200 W.P. Union bonnet. Plug type disc, integral seat. Also available with flanged or socket welding ends.

Fig. 1886—Stainless steel (304 or 316) Liquid Level Gauge. Offset pattern. W.W.P. 350 pounds. Screwed end valves with inside screw rising stem. Sizes, ½" and ¾".

Fig. 2456-SG—Large Stainless Steel Gate Valve for 150 W.P. Outside screw rising stem and yoke; interchangeable accurately guided solid or split wedge discs. End flange dimensions conform to latest standards.

A solution for every kind of flow control problem is as near as your local Powell distributor. Powell valves are designed and engineered in the largest variety of metals and alloys, to handle any medium, every flow control requirement. There are Powell distributors in all principal cities. Or, if yours is a special engineering problem, write to:

THE WM. POWELL COMPANY • *Dependable Valves Since 1846* • **Cincinnati 22, Ohio**

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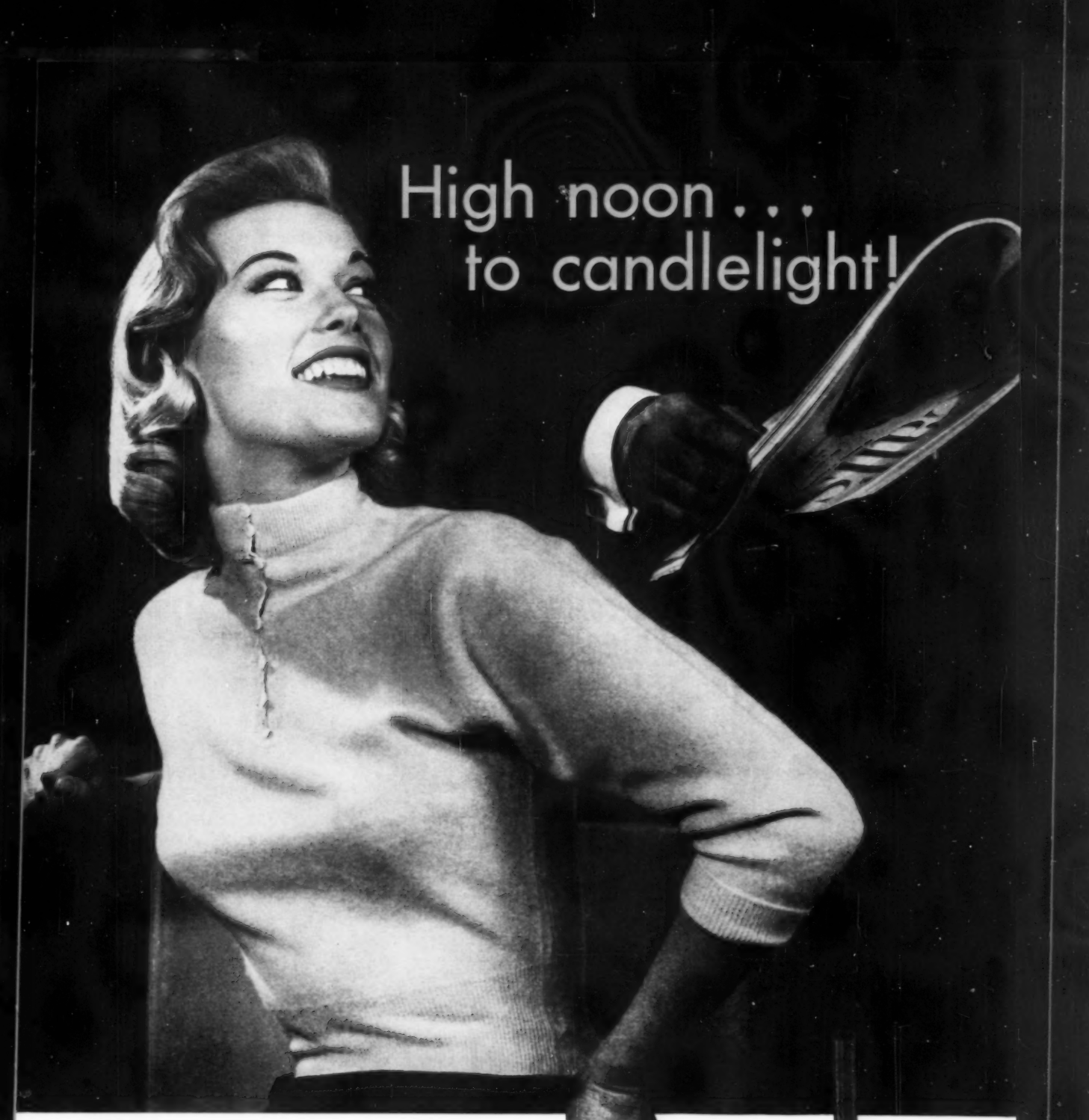
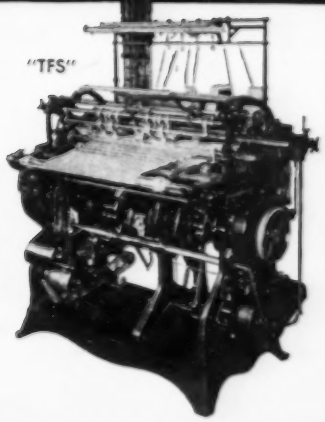


Beautifully fashioned sweaters set new style trends . . . all day long.

Regardless of sweater requirements the Wildman Jacquard "TFS" knitting machine offers more quality fabrics with greater style versatility at lower knitting costs.

New features, incorporated in the "TFS" design, permit the production of a variety of full fashion outerwear in a range of natural or synthetic fibers.



All day long . . . sweaters belong

For complete information write:

WILDMAN/JACQUARD

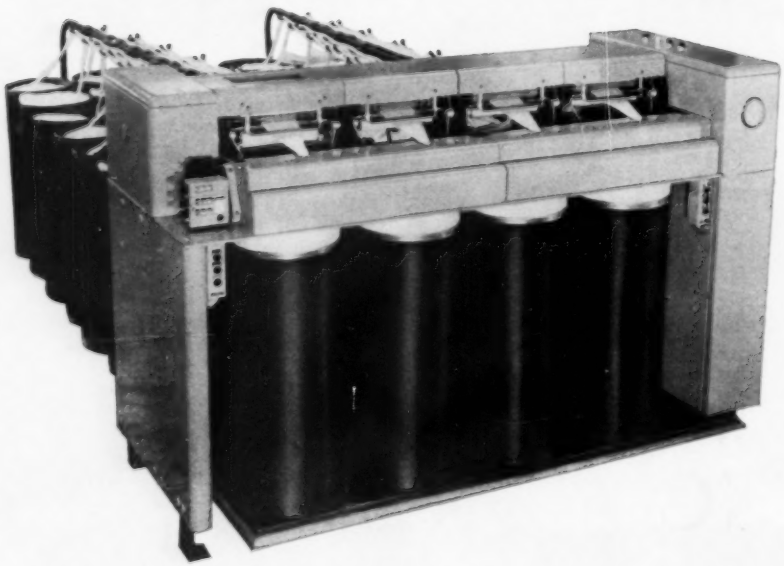
a subsidiary of Draper Corporation, Hopedale, Mass.

WILDMAN JACQUARD CO. • 1210 STANBRIDGE STREET • NORRISTOWN, PENNSYLVANIA

A HIGH PRODUCTION MACHINE
THAT BELONGS IN YOUR MILL

SACO-LOWELL'S
VERSAMATIC
DRAWING FRAME

KEEPS YOU AHEAD OF COMPETITION BY LOWERING OPERATING COSTS, INCREASING PRODUCTION, IMPROVING QUALITY.



VERSAMATIC *GIVES HIGHEST PRODUCTION OF QUALITY SLIVER BY EVERY STANDARD –*

- **PER DELIVERY**
- **PER MAN HOUR**
- **PER HORSEPOWER**
- **PER SQUARE FOOT OF FLOOR SPACE**

Invest a few moments time today to obtain all the facts from your SACO-LOWELL Sales Office — it's an investment that can result in a sounder, more profitable tomorrow for your mill.

SACO-LOWELL SHOPS

60 BATTERYMARCH STREET, BOSTON 10, MASS.

Shops at BIDDEFORD & SACO, MAINE; SANFORD, N.C.; EASLEY, S.C. Sales Offices: CHARLOTTE · GREENSBORO · GREENVILLE · ATLANTA

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New word in fashion: Zefran®

zĕf-răn

(Zĕf-răn), n.1.

Entirely new acrylic alloy fiber made exclusively by The Dow Chemical Company. Created to fill the market need for a practical luxury fiber. Syn. See FASHION and FUNCTION.

Fabrics now being created by selected mills (for apparel only). For further information write The Dow Chemical Company, Williamsburg, Va. You can depend on DOW.

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TEN MILLS REORDER UNIFILS

Loom Winder's Performance Saluted by Reorders from Mills of All Sizes — Weaving Cottons and Synthetics

Several thousand UNIFIL® Loom Winders, one of the most progressive developments in the textile industry, have been operating in 22 mills of all sizes during the past year.

Ten mills have reordered UNIFILS to automate their weaving. Among these are Amerotron, Inc.; Burlington Industries, Inc.; Cannon Mills; the Dover group, Shelby, N. C.; Pansy Weaving Mills; Starr Mills Corp. A number of mills now have completely-equipped weave rooms.

These reorders have been placed after thorough evaluation to prove UNIFIL's performance, with special emphasis on quality, versatility and economy. And these are only the first of very many more to come.

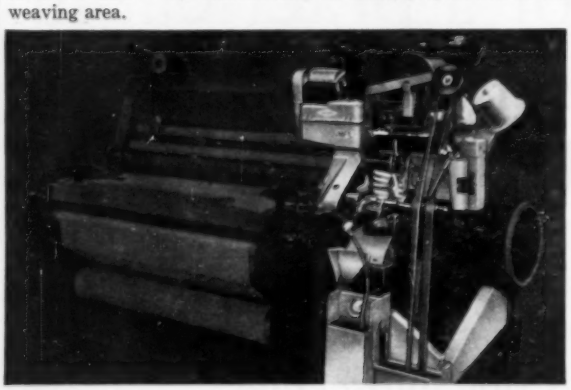
Better Quality — Lower Cost Per Yard

Within the past year Universal has worked with many important mills that bought UNIFILS for exhaustive trial. As a result, UNIFIL-equipped looms are producing at a yearly rate of close to 100 million yards (increasing weekly) of staple and fancy fabrics woven from cottons, spun and filament synthetics, textured and novelty yarns.

The mills reordering were greatly influenced by UNIFIL's performance in improving fabric quality and reducing cost per yard..

Advantages of Weaving from a Cone

By offering the advantages of weaving from a cone, UNIFIL eliminates many costs connected with filling preparation — and reduces others — by consolidating all filling preparation in the weaving area.

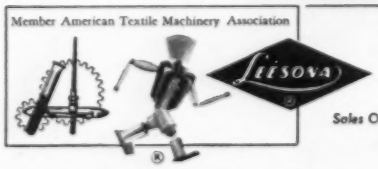


Modernize Your Own Mill

Forward-looking textile companies see the profit possibilities that can be realized from equipping their looms with UNIFIL Loom Winders. Some mills, including Ponemah and United Merchants, were convinced at first sight of the benefits of UNIFIL and filled a complete weave room with their initial order. Others, including Cone Mills, J. P. Stevens and Woodside Mills, purchased a substantial number of units for evaluation on a variety of yarns and fabrics.

For an analysis of your own filling yarn preparation methods — and how to improve them with *proved* UNIFIL Loom Winders — ask for a Profit Factor Analysis — contact your Universal Sales Engineer.

Member American Textile Machinery Association



UNIVERSAL WINDING COMPANY

P.O. BOX 1605, PROVIDENCE 1, R. I.

Sales Offices: Boston • Philadelphia • Charlotte • Atlanta • Los Angeles • Montreal • Hamilton, Canada

Representatives in every principal textile center throughout the world

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For automatic weaving

for all types of looms, for all types of stop motion, made of different types of hardwood, and with various varnished finishes, suitable for every requirement.

EMIL ADOLFF Reutlingen/Wttbg., Germany

U.S.A. Central Organization—Textube Corporation, 695 Summer St., Stamford, Conn.

Sub-Agents for the South:
Watson & Desmond, 220 West Fourth Street, Charlotte, N. C.

Sub-Agents for Canada:
Crowther Limited, 212-214 Victoria Ave. Westmount, Montreal, P.Q.

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Put strength, long life, silence into gears, couplings, loom parts with C D F Celoron® plastic

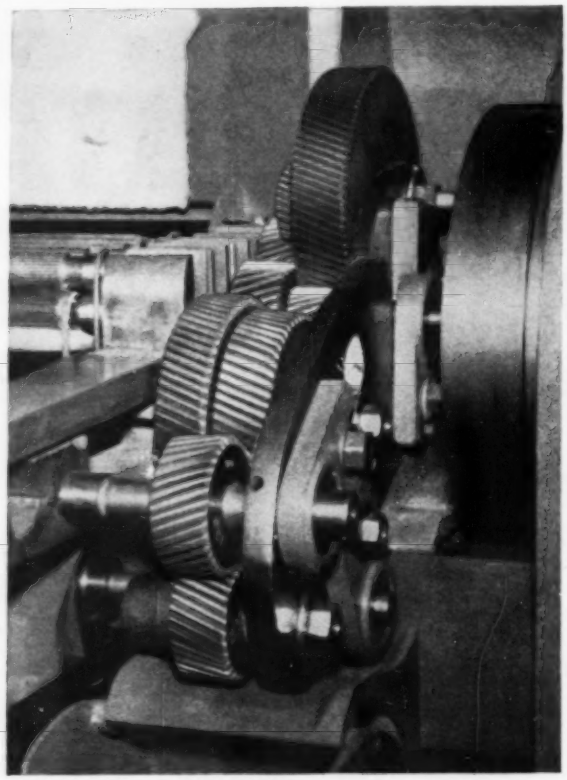
WORK MIRACLES IN TEXTILE MACHINERY—with this amazing golden plastic material! Celoron gears help eliminate noise, reduce wear on mating metal gears; and even the roughest-used helicals last . . . and last . . . and last.

HIGH MECHANICAL STRENGTH. Typical Celoron strengths: tensile, 6,500 psi; flexural, 10,000 psi; compressive, 25,000 psi; shear, 8,500 psi. Dimensionally stable and readily machined, Celoron fills the bill where costly metal parts fail.

ELECTRICAL INSULATION VALUE. Celoron is a non-conductor with high electrical insulation value. It makes ideal mechanical-electrical parts. Celoron couplings effectively insulate motors from driven machinery.

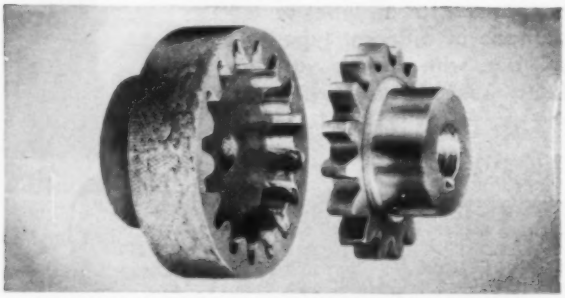
BETTER SERVICE FOR THE SOUTH. Besides having sales engineers in all principal cities, C-D-F maintains a specialized plant-warehouse stocking Celoron parts and Diamond Fibre receptacles for the Southern textile industries at 834 Hayne St., Spartanburg, S. C. Your Celoron gear blank, coupling, or loom part will reach you fast from this wide-awake distribution center.

Keep in close touch with *your* C-D-F sales engineer—a good man to know!

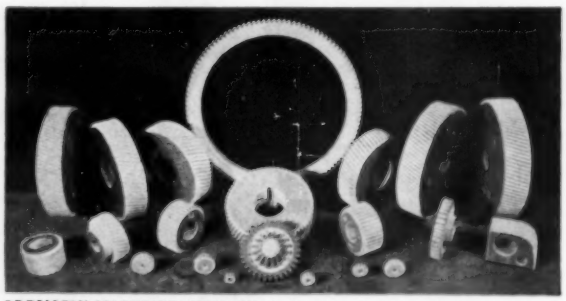


CELORON-TO-CELORON GEARS in drawing rolls made by Ideal Industries, Inc., Bessemer City, N. C. These are helical-cut gears—the toughest to machine, requiring the toughest material. Celoron is it. Other Celoron parts for this application are shown below, top right.

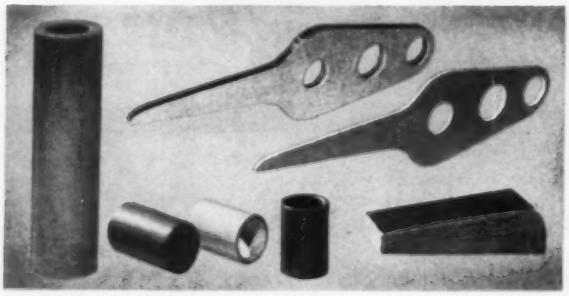
CONTINENTAL-DIAMOND FIBRE
A SUBSIDIARY OF THE Bakelite COMPANY • NEWARK 55, DEL.



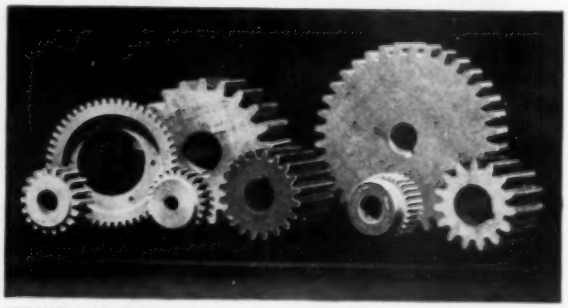
LOW-COST, EASILY-ASSEMBLED C-D-F Celoron flexible coupling transmits power smoothly, efficiently, silently . . . needs no lubrication, works on vertical or horizontal shafts.



PRECISELY MACHINED KEYWAYS help keep these Celoron parts silent and strong in the Ideal drawing rolls illustrated in top photograph. Note wide range of sizes and shapes.



YEARS OF SERVICE, freedom from maintenance, resistance to moisture—that's what these C-D-F parallel plugs, knife guides, binder bushings give the mill operator.



STRONG, SILENT CELORON makes both drive and driven gears. Metal gears don't develop excess play, last longer when they mate with Celoron. Many applications are 100% Celoron-geared.

He's available when you ***NEED*** *him*

So are Franklin-Dyed yarns

Yes, Franklin Yarn Dyeing Service is always handy, always dependable, when you NEED it. When you don't, it isn't part of your overhead. Just contact the nearest of our 4 strategically located plants and you'll receive expert and prompt attention.

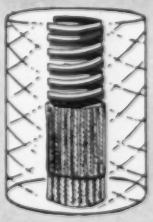
And here are additional benefits from using Franklin Dyed Yarns—all important to you:

QUALITY— We dye exclusively on the Franklin compressible spring. This permits uniform density of packages, which promotes uniform penetration of the dye liquor and resultant uniform shades.

SPECIALIZATION— Yarn dyeing is our specialty. We don't dye just to make yarn sales. Our 4 plants and our entire organization have but one objective — to provide the best yarn dyeing service available.

CONSULTATION— We can help you with your color problems. We have unequalled laboratory facilities, a staff of highly skilled technicians, unequalled experience in time, variety and volume — all at your service.

CAPACITY— With our multiple plants and diversity of equipment, we are literally the largest package dyers in the world — ready to dye all types of spun fibres in any quantity. Contact our nearest plant or office.



X-ray view of Franklin Package, the "secret" of uniform shades. Don't say "package dyed". Say "Franklin-Dyed".

Franklin Process

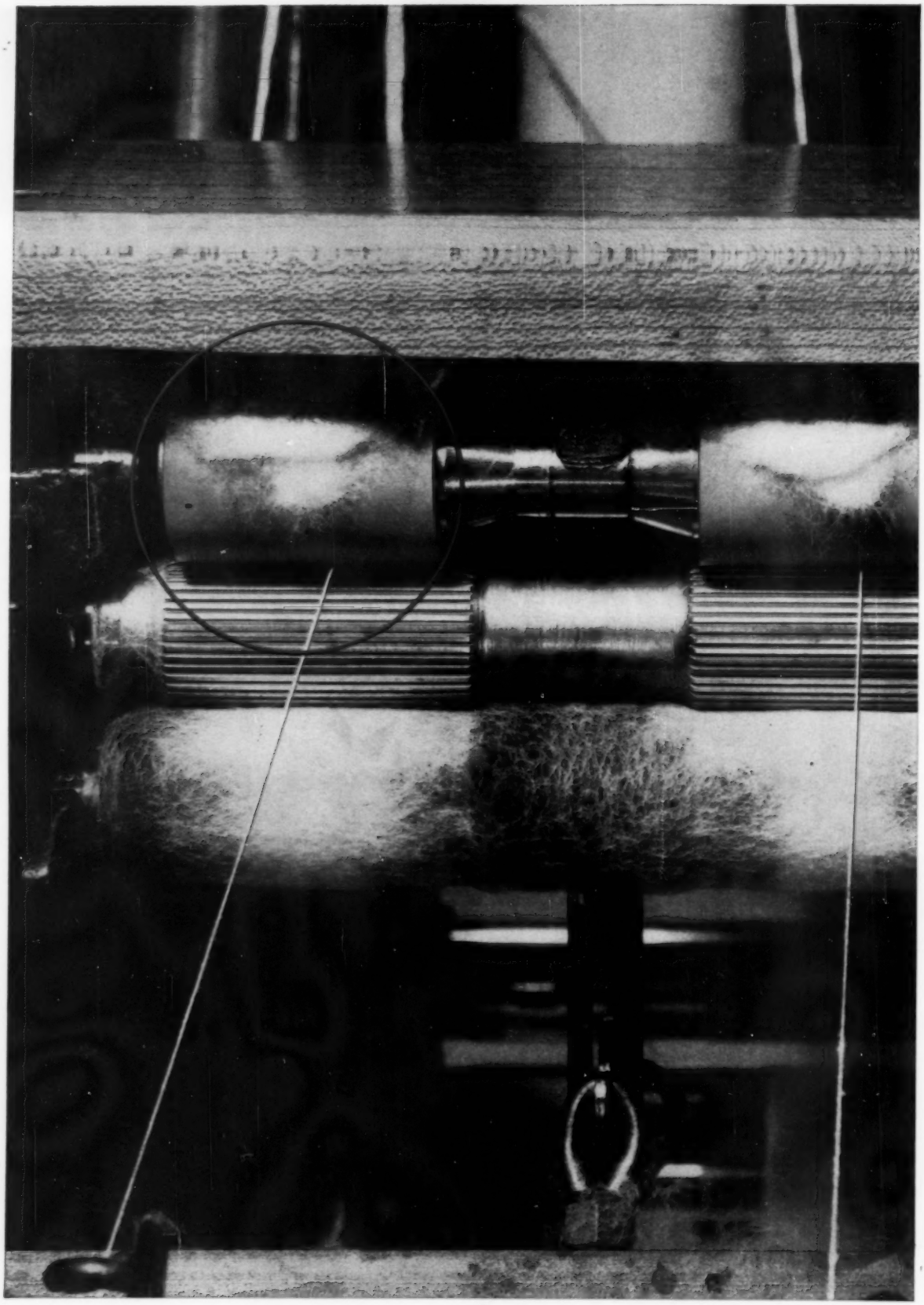
A DIVISION OF INDIAN HEAD MILLS

Dyers of cotton (carded, combed, mercerized) Orlon* (yarn & tow) Acrilan • Dacron** • Ban-Lon® • Helanca • Spun Nylon • Spun Rayon • Blends • Wool and Worsted yarn

Philadelphia • Greenville
Chattanooga • Fingerville, S. C.
Sales Representatives in Providence, R. I.
New York City (280 Madison Ave.)

6-8

*Trademark for Dupont's acrylic fibre **Trademark for Dupont's polyester fibre



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eliminate eyebrowing

Accotex anti-static cots help prevent serious eyebrowing and reduce waste formation.

When you see eyebrows forming on your flat clearers, you can usually put most of the blame on the spinning roll. Hundreds of mills have virtually eliminated this problem by equipping their frames with NC-762 Accotex Cots.

NC-762 is one of the new anti-static roll covers developed by Armstrong textile research. This new cot has an exclusive "constant-friction" surface that has just the right amount of bite needed to pick up loose fibers — and pack them well back under the clearers. In addition, many mills report substantial reductions in the total amount of waste formed where NC-762 Accotex Cots are used.

As a result of this superior performance, NC-762 Cots provide maximum eyebrow resistance. They'll help you maintain high production of top-quality yarn by keeping to a minimum yarn irregularities caused by eyebrowing.

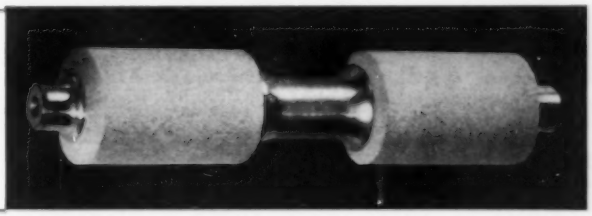
Like all Armstrong roll covers, NC-762 Accotex Cots are compounded to give long service life as well as excellent spinning performance. With just an occasional re-buffing (as seldom as once a year), these covers will turn out clean, uniform yarn shift after shift, for years.

In the card room, Armstrong NC-762 Accotex Covers give the drafting qualities and eyebrow resistance needed for drawing and roving frames equipped with flat clearers.

Whatever type of equipment you have in your mill, and no matter what fiber or blend you're spinning, there's an Accotex Roll Cover to meet your requirements. Your Armstrong representative will be glad to work with you in selecting the roll cover best suited to your work.

For more information on the complete Armstrong line of supplies for textile mills, write to Armstrong Cork Co., Industrial Division, 6505 Dauphin St., Lancaster, Pa.

For maximum eyebrow resistance on spinning frames, you can depend on Armstrong NC-762 Accotex Cots. Ask your Armstrong man to arrange a test installation in your mill. Prove on your own frames how these cots perform.



Armstrong ACCOTEX COTS

. . . used wherever performance counts

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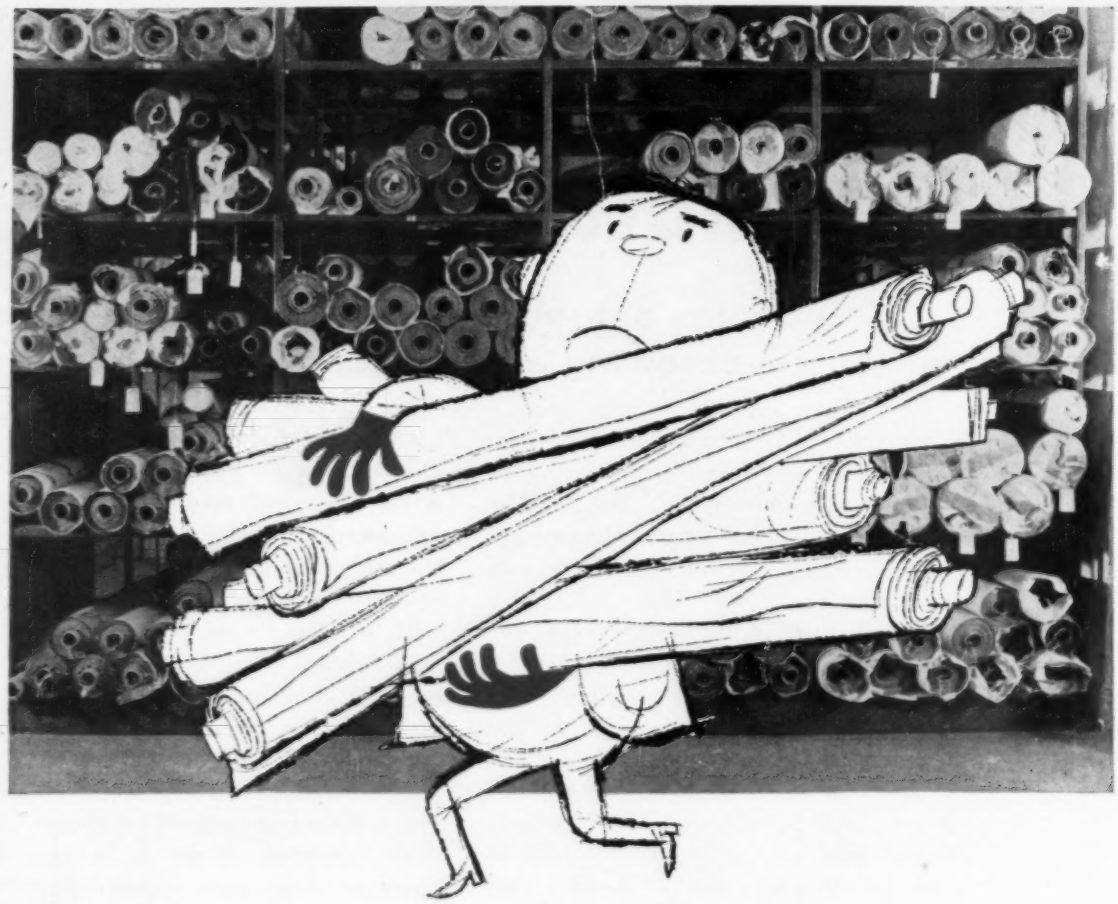


Why not stop those fabric "seconds" in the first place?

If "seconds" are taking your profits hand over fist—let's talk for a minute.

Maybe the root of your problem is the rayon yarn you're using!

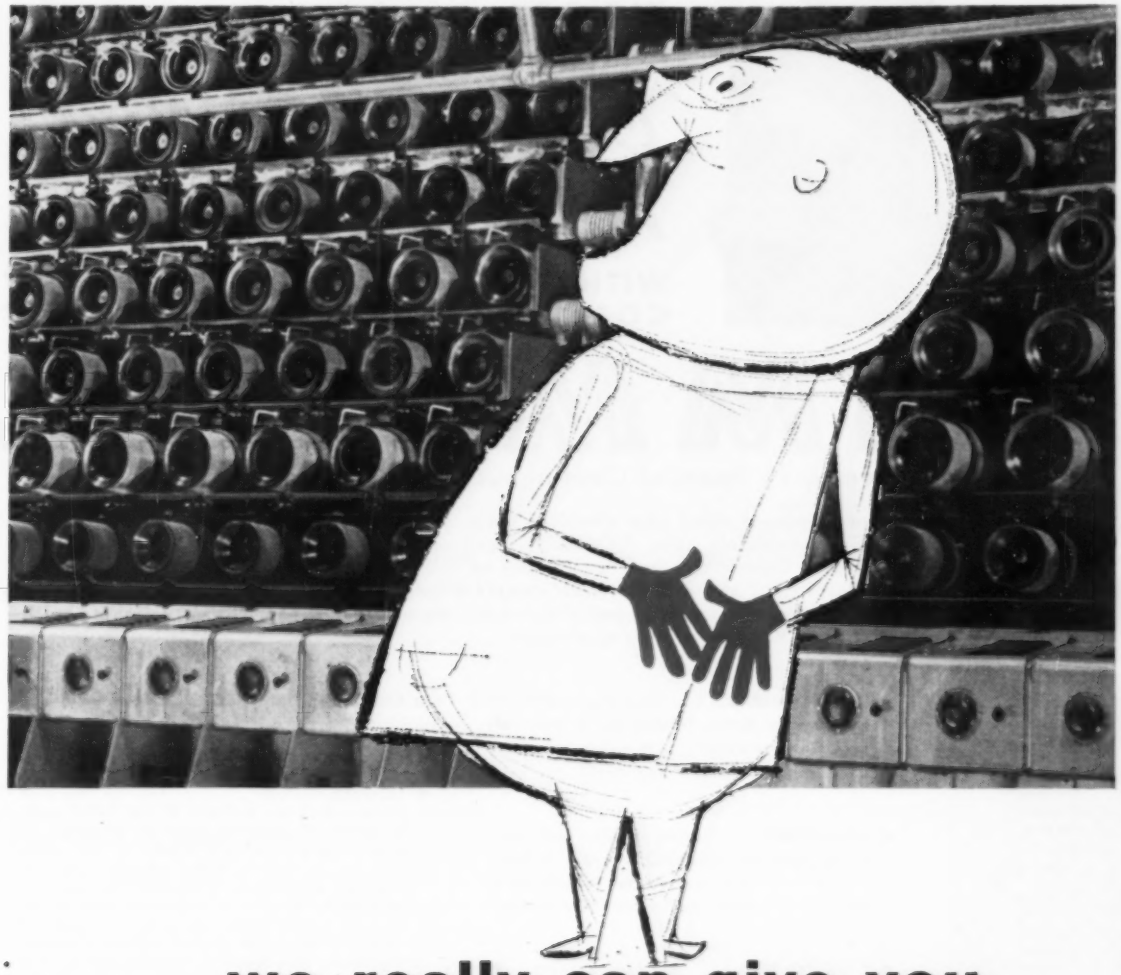
You know, rayon that's processed the regular way gets handled. Actually, it gets picked up, put down, handled many, many times before it reaches your looms.

That means many chances that filaments will be broken, multiple knots made necessary, slubs formed. That means you might get yarn with such lack of uniformity that it shows up in wildly uneven dyeing . . . and shows up in the red on your ledger sheets.

Now, consider I.R.C.'s Continuous Process Rayon. Its name says it! Its process is continuous. Nobody interrupts its inch-by-inch flow from spin-bath to final wind-up. Everybody keeps hands off it. And the rayon yarn that results is as flawless and uniform as can possibly be made!

Yet it costs no more than you're paying right now!

Only one rayon-producing plant in the whole U.S.A. makes rayon yarn this way. That's I.R.C.'s far-famed Painesville, Ohio plant. We'd like to give you a guided tour, any time you say. Meanwhile, can't we lend a hand with your plant problems now?



...we really can give you a hand!

I·R·C

Industrial Rayon Corporation
Cleveland, Ohio

Producers of Continuous Process Rayon Yarns and Tyron® Cord for Tires
Sales Office: 500 Fifth Ave., New York 36, N. Y.

I. R. C. CONTINUOUS PROCESS RAYON COSTS NO MORE . . . SAVES YOU PLENTY BECAUSE IT'S PERFECT INCH BY INCH . . . UNIFORM MILE AFTER MILE!

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END "Cleaning Operations" ANXIETIES

WITH THIS ABSOLUTELY SAFE, LOW COST, VERSATILE CLEANING SOLVENT

(Reg. U.S. Pat. Off.) IMMUNOL

Proven by 11 Years of Continuous Use in Leading Mills—Everywhere

For peace of mind plus effective, easy cleaning, use IMMUNOL. In addition to being absolutely safe, IMMUNOL's powerful detergent qualities make it an ideal general cleaner for mill equipment of all types. IMMUNOL removes dirt, soil, grease, size, and mill film with complete safety to personnel, equipment and fabric (providing the fabric is not affected by plain water). You will be delighted with IMMUNOL's outstanding qualities.

IS PRACTICAL FOR USE IN THESE OPERATIONS

Bleaching
Blending
Boarding
Carding
Circular Knitting
Cleaning
Combing
Dyeing
Drawing
Equipment Finishing
Full Fashion
Inspection
Knitting
Maintenance
Opening
Packaging
Picking
Printing
Roving
Rust Proofing
Slashing
Spinning
Spooling
Throwing
Tricot
Tufting
Twisting
Warping
Weaving
Winding

- **NON-FLAMMABLE** . . . even when contacted by an open flame, IMMUNOL is positively safe. Use IMMUNOL with safety anywhere under any condition in your plant.
- **NON-TOXIC** . . . being odorless and positively harmless, IMMUNOL is safe to work with even for extended periods of time without any ill effect whatsoever to personnel.
- **SAFE TO SKIN** . . . day long contact with workers' skin causes NO discomfort or irritation; eliminates need for costly protective clothing and accessories.
- **CLEANS ALL METALS** . . . may be applied in any manner and be wiped dry or allowed to dry. IMMUNOL is equally effective for cleaning of plastic, wood parts and ceramics.
- **RUSTPROOFS** . . . IMMUNOL leaves an invisible protective rustproof coating without oily residues. Reduces defective goods resulting from unclean equipment.
- **LAP UPS ELIMINATED** . . . by eliminating residual oils which cause lap ups, IMMUNOL eliminates lap ups ordinarily attributed to this cause.
- **LOWERS COSTS** . . . a few of the cost savings features include: ● low initial cost, a gallon of cleaning solution prepared to proper proportion and ready to use costs only 15c a gallon. ● less storage space is required ● Immunol is so safe, its use may warrant a reduction of insurance rates ● can be used safely and properly by the unskilled employee ● can be applied without stopping machinery ● completely washes out of any fabric without affecting the shade of the material (providing the fabric is not affected by plain water).

TEST IMMUNOL AT OUR EXPENSE, WRITE FOR FREE SAMPLE AND LITERATURE TODAY.

Fibregard

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Original Colloidal Lubricant

Effects substantial savings when used as a stock lubricant, a warp sizer, softener and binder, and as a cone winding lubricant. Binds fibres without being sticky. Eliminates neps and pilling. Adheres uniformly to all fibres. Reduces fly. Increases the tensile strength of fibres. Reduces breakage of treated yarns. Scours out completely. Eliminates migration. Safe to fabrics unaffected by plain water or an alkalinity of 8.0.

WRITE FOR FREE BOOKLET AND TESTING LOT

HARRY MILLER CORP. HAMICO 4TH & BRISTOL STREETS PHILADELPHIA 40, PA.

HARRY MILLER CORP.

Original Products and Processes Since 1936

4th and BRISTOL STS., PHILA. 40, PA.

DAvenport 4-4000

Service Representatives in Principal Cities

Manufacturers of

- GLYCOLA
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- FIRMTAL

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Small Mills in a Pinch

We heard a sad story the other day about a small textile mill fighting to keep its nose above water in the current period of unfavorable business. It makes only one product, and business is highly affected by season. The mill is caught in a squeeze by a delay in buying and the necessity for building up inventory at the mill.

Working capital and loans normally sufficient to tide the mill over the seasonal bumps were exhausted, and still buyers acted shy. The proprietor of the mill was reduced to mortgaging his personal property, even his home, to keep operating.

There's where the matter stands now. The mill may manage to survive; or, if things don't improve soon for it, it very likely will be liquidated before the year is over.

The Plight of Small Mills

This instance only illustrates the tough going that many, perhaps most, small, independent mills are having now. It also sounds a warning that the day when small, independent mills could operate successfully may be drawing to an end, except in rare and extremely specialized cases.

On the face of it, it sounds as though the mill mentioned above is in trouble because it is underfinanced, that if it had more working capital its problem would be solved. Perhaps that is the case.

But it may also be true, in this or many similar cases, that larger working capital is needed only because of a fault in other areas. A recent study by Dun & Bradstreet shows that underfinancing is by no means the major cause of mill failures. It is considerably less important than "incompetence," which in most cases of failure is meant to cover unequal ability in business management, production, and sales.

Stated in plainer words, what leads many small mills to failure is that the organization (or proprietor, if it's a one-man operation) is not equally skilled in business management, production, and sales.

Big Companies Have an Advantage

Here lies one of the greatest advantages held by big textile companies. Their business volume is enough that they can afford the best skills available in all these areas and put them to their best use.

It is not necessarily true that a big company is better financed than a small company. The big company may be dealing in millions of dollars where the small company deals in thousands; but size of figures has nothing to do with financial soundness.

But skill in management, close control of production costs, and leadership in marketing do have a great deal to do with company soundness and continuity. And it is in these activities that the present big textile companies excel.

By no stretch of the imagination does this mean that their competition is unfair. It means only that a company not commanding equal skills in all these areas has little chance to meet the competition of big companies that have these advantages.

The Small Mill's Hope

Probably the best hope for small, independent mills to survive lies in two directions: (1) to excel as a specialty mill, and (2) to excel as a quality-plus-price mill in less specialized products.

1. Most European mills, for example, are specialty mills. A weaving mill with 200 looms may have 50 or more styles running at one time. A spinning mill may have only one frame on a yarn style. (Actually, we have seen woolen spinning frames running with three styles of yarn on one frame.) A finishing plant may have a run of no more than 100 yds.

There are already a few high-quality, high-price specialty mills in the U. S. that are doing extremely well even in the present recession.

2. The second approach is to take advantage of the close control that the size of a small mill makes possible. Bigness often leads to waste that can be avoided by a small mill—waste of machine use, manpower, material, overhead, etc. Effective control over such waste can give an edge in costs; and the only way a small, independent mill can continue on mass-market products is to beat the big mills in cost and quality.

O. M. Thomas

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What You Should Know About —

• job evaluation
• work simplification

Here are the essentials of practical job evaluation and work simplification that every supervisor should know. These techniques, easy to learn and easy to apply, can help you—

- Cut costs
- Use manpower more efficiently
- Eliminate waste time and motion

By ROBLEY D. STEVENS
Management Consultant

JOB EVALUATION—

The problem of promoting the will to work, meeting wage demands, and determining what constitutes a fair and equitable pay rate for a given job is a never-ending task for management and supervisors.

Dissatisfaction over pay rates does much to impair employee efficiency, lower morale, and increase personnel turnover. Employers should continually ask themselves: How do we set job rates? How do we solve wage problems? Are there any inequities in pay among employees working on the same job? How do our rates compare with other mills?

To obtain true and objective answers to these questions there is no substitute for setting up a sound and effective job-evaluation program based on a thorough analysis of every job in the mill.

Job analysis tells who does what. It is the determination of the tasks, skills, knowledge, and responsibilities required of an employee for the successful performance of his job.

To be useful for job evaluation, an analysis should give a detailed breakdown of all the factors involved. Such an analysis should provide an organized picture of the abilities significant to job competence.

Collection of the necessary data in a systematic, orderly way not only reduces the required effort but also is helpful in insuring adequate coverage and weighing all aspects of the job.

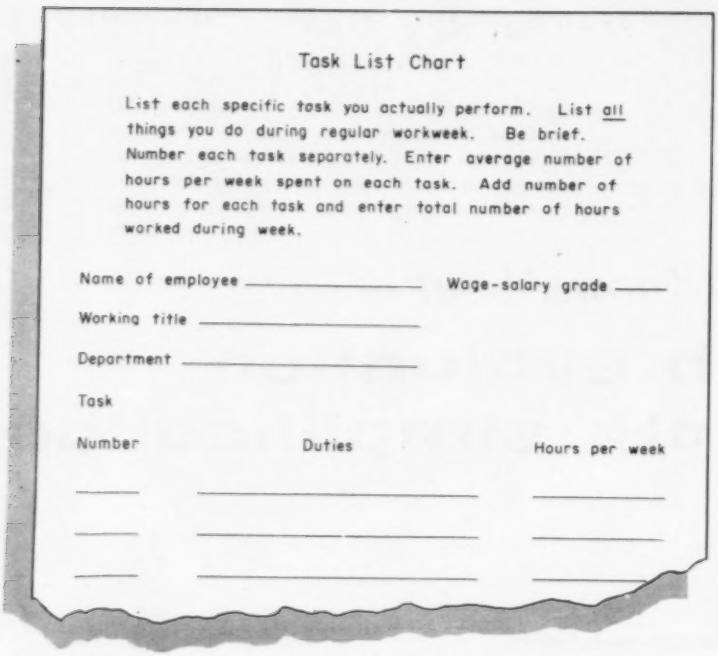
Actually, there are only three parts to the analysis of any job: (1) the job must be completely and accurately identified, (2) the tasks of the job must be completely and accurately described, and (3) the requirements the job makes on the worker for successful performance must be indicated.

The first step in the analysis of mill jobs is an exact determination of what the jobs are and their precise limits; that is, where the jobs begin and where they end.

Contrary to popular belief, it is not necessary to engage outside counsel to install such a system. All that is really essential is reasonable intelligence, objectivity, and a willingness to do the work.

In fact, a personnel executive in the mill can collect complete, accurate, and intelligible descriptions from employees. Each worker in the mill can do his part by filling out a questionnaire for this purpose (see the accompanying Task List Chart). Such participation can help sell job evaluation to employees.

In making a job analysis, the technician should interview the less-efficient as well as the more-efficient



Task List Chart

List each specific task you actually perform. List all things you do during regular workweek. Be brief. Number each task separately. Enter average number of hours per week spent on each task. Add number of hours for each task and enter total number of hours worked during week.

Name of employee _____ Wage-salary grade _____

Working title _____

Department _____

Task Number	Duties	Hours per week
_____	_____	_____
_____	_____	_____
_____	_____	_____

WORK TASKS performed by operators are listed on Task List sheets. For example, for a spinner the first entry might be "Task Number, 1; Duties, Piece up ends; Hours per week, 3½." If timestudies are available, data for these sheets are taken from them.

workers. Both can help provide a complete picture of typical duties and the kinds of knowledge and skills needed to perform the duties adequately. In fact, critical areas of knowledge may be pinpointed in this way.

Job Contents To Cover

It is usually desirable for a job analysis to cover the following information:

Job title—The name by which the job is commonly called in the mill.

Alternate title—Any titles other than the one commonly used in the mill.

Number employed—The number of workers on the job at the time of the job analysis.

Work performed—A thorough and complete description of the duties; a correct portrayal of the identity, purpose, contents, and requirements of the job.

Experience—Any experience that a worker must have had before he can satisfactorily perform the job. A worker may be required to possess specific training to compensate for the lack of experience.

Apprenticeship—Certain jobs require a more or less well-defined combination of experience and training.

Performance requirements—This element covers the responsibility, job knowledge, mental and physical application, and dexterity required of the worker.

Date—on which the job analysis was made.

General comments—This entry covers all other factors pertinent to the job.

Once this information has been assembled, the next step is to choose one of the four basic job-evaluation systems now in general use: the ranking system, job-classification system, point system, and factor-comparison system.

1. Ranking System

This method is sometimes referred to as the card-sorting system because the jobs are arranged from high to low, as in a deck of cards. All the mill jobs are then ranked in order of importance, in relation to other jobs, without reference to money or to the individual holding the job.

A good method is to list the jobs in each department horizontally and have the supervisor rearrange them vertically in the order of their importance. The vertical lists from different departments are then combined into one organizational chart. With this system, it is essential to check all lists thoroughly to avoid disagreement.

2. Job-Classification System

In this system, a number of categories or grades are established in advance and the jobs are assigned to these classifications. Such a method presupposes that every job in the mill contains definite elements or phases that can be classified into grades.

The grades are then established on the basis of difficulty and responsibility as represented by the number and kinds of management rules regulating the work being done and by whether or not and how often the work is subject to check.

The success of such a job-measuring method depends on a thorough knowledge of all jobs so that every work element can be taken into consideration and the duties and responsibilities of every employee can be clearly distinguished.

3. Point System

This method is probably the most widely used today, and it is rapidly gaining still greater acceptance by American industry.

Briefly, it works something like this: A number of predetermined factors—such as age, education, years of training, experience needed, and physical effort involved—are found to be common to all jobs. A schedule of points is then set up for the various gradations of each factor.

The levels, or grades, in each factor should be expressed or defined in writing; and it is desirable to have each definition accompanied by examples of standard, well-defined jobs. These standard jobs should be based on the abilities a worker brings to the job, the extent to which he is called upon to use these abilities, the responsibilities the job demands, and the conditions under which the job must be performed.

When the individual jobs have been evaluated, the sum of the job factors should be well under the maximum total points of the system.

4. Factor-Comparison System

There are several differences between this method and the point system. One difference is that in the factor-comparison system the graded factors are assumed to be fundamental to all jobs. Another difference is that in this system jobs are evaluated relatively, with existing jobs used as points or degrees on the evaluation scale; whereas, in the point system descriptive job definitions are used.

This system also has the advantages of simplicity and of establishing a fixed relationship between job value and actual compensation, since it is

based on key mill jobs for which compensation is standard or, at any rate, not subject to controversy.

Once the key mill jobs have been selected, they should be ranked from highest to lowest in order of importance. After the ranking, however, the key jobs are evaluated by study and examination of individual job descriptions. All other jobs in the mill are then related to the key jobs.

The above recommendations do not cover the entire field. But they can serve as guideposts. Mill management interested in exploring further the subject of job evaluation might wish to consult the following books:

Job Evaluation, by E. Lanhorn, McGraw-Hill Book Co., Inc., New York 36, N. Y.

Job Evaluation, by J. A. Patton and C. L. Littlefield, Richard Irwin, Inc., Homewood, Ill.

Job Analysis, Evaluation and Merit Rating, International Textbook Co., Scranton, Pa.

Job Evaluation, by F. H. Johnson, R. W. Boise, Jr., and D. Pratt, John Wiley & Sons, Inc., New York 16, N. Y.

WORK SIMPLIFICATION—

There is always a better way of doing a job in every textile mill. Better methods, improved tools, easier working conditions, and shorter procedures may be discovered when supervisors and workers pool their efforts. Work simplification makes these better methods apparent because it is a management technique for identifying and eliminating uneconomical use of time, equipment, materials, space, and human effort.

Supervisors Are the Key Men

Work simplification helps in solving mill problems such as bottlenecks, low output, red tape, backlogs, overtime, and low morale. It is an action program that pays big dividends. It is aimed directly at the mill supervisor by equipping him with the skill and know-how to analyze and improve existing methods and procedures.

Its basic principles and procedures are simple in nature and can be readily learned and employed by the supervisor. Thus, it provides the means to tap the great reservoir of practical knowledge represented by the supervisor group.

Mill supervisors should be taught to gather relevant facts quickly, organize them in simple chart form, and interpret them accurately. Work simplification is not a single shot in the arm. Supervisors can continue to use the methods in solving everyday work problems.

Once supervisors have mastered the use of work-simplification techniques, they should be expected to apply them successfully to the work of their departments. This is an important feature of the program and can produce a sizable saving in time, money, and manpower over a long period of time.

Paper Work Can Be Reduced

Obviously, the growing volume and complexity of paper work is important to every mill. Management is concerned not only with accuracy and economy but also with the large amount of time and clerical effort required to get productive work done effectively. Work simplification attacks the mass paper-work problems, and it will also help workers to think about better ways to increase production and cut costs.

The supervisor is the one individual constantly face to face with the realities of running his department. Much of the paper work revolves around his desk. He must know work requirements and problems at first hand and is therefore in the best position to develop improvements and to get action on improvements after they are developed.

Three Techniques To Use

The three techniques that comprise a work-simplification program are: (1) a study of work distribution, (2) a work count (flow process), and (3) motion economy.

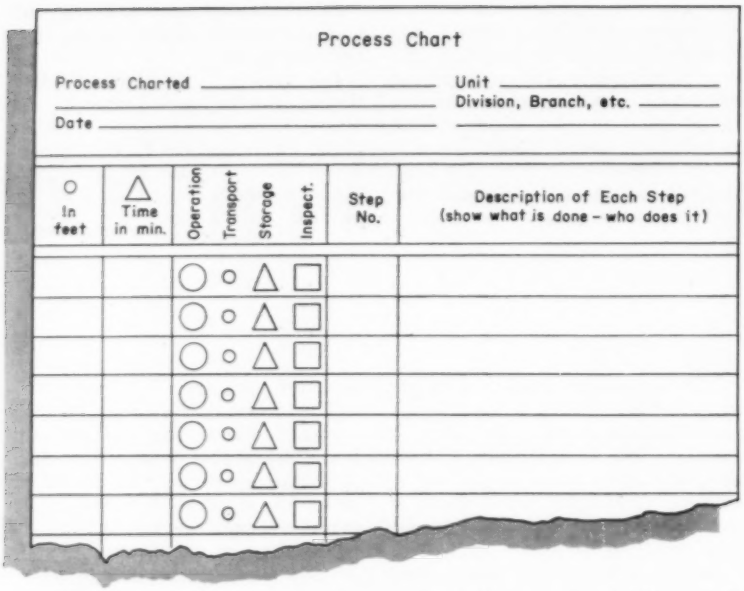
1. Work Distribution

The accompanying Work-Distribution Chart shows a mill's division of work. It helps management ask and get an answer to: What activities take the most time? Is there any misdirected effort? Are employee skills being used properly? Are employees doing too many unrelated tasks? Are the tasks spread too thin? Is the work distributed evenly?

Work-Distribution Chart

Activity	Total man-hours	Employee A	Man-hours	Employee B	Man-hours	Employee C	Man-hours

THE WORK-DISTRIBUTION CHART is made out with information taken from the Task List sheets. For example, if a mill has 20 spinners and they spend an average of 3 hrs. a week piecing up ends, the total manhours would be 20x3=60 hrs. But Employee A might spend 3½ hrs. at this task, Employee B 2½ hrs., Employee C 3¼ hrs., etc.



THE PROCESS CHART is widely used for visually analyzing work. The large circle represents a mill operation that is being created, added to, or reduced. The small circle represents transport (something is moved from one place to another). The triangle represents storage. The square represents inspection (checking or verification).

A work-distribution chart is the easiest and best way to arrange these facts in simple form. A properly made chart will help mill management to determine if the largest total time of its employees is devoted to the major functions of the mill. It is the basis for work-improvement effort.

Information needed for filling in the work-distribution chart is obtained from the Task List Charts. These charts are filled out by the workers or by the supervisor or technician with the help of the workers and are used in evaluating jobs.

2. The Process Chart

The Flow-Process Chart provides a quick visual analysis of the job.

It shows the mill's sequence of work and enables management to trace the work step by step. It helps you ask and get an answer to: What is done? Why is this step necessary? Where should this step be done? Can it be done easier? Who should do the job? Is the right person handling it? How is the job being done?

Such scrutiny helps the supervisor locate and eliminate unnecessary steps. The supervisor should chart one thing at a time and follow it through. Every process has to start somewhere and finish somewhere. A process chart is a picture of a procedure.

Process charting presents many opportunities for saving time and money, for justifying existing department procedures and personnel utilization, and for improving mill management. Dollar and manhour savings have proved its usefulness in getting work done better, faster, and more efficiently.

By using the four symbols on the Process Chart, supervisors can see at a glance just what steps are taking place in their departments.

3. Motion Economy

A study of motion economy shows how to produce the best results with the least amount of physical effort by the employee. It is not a speed-up but an elimination of waste motion and nonproductive effort. It shows how to provide better working conditions; the shortest travel distance for materials, papers, and workers; etc. It is particularly useful in identifying opportunities for the application of management-engineering principles.

Motion economy consists of doing in the best way the things that must be done and eliminating tasks where cost exceeds the value of the product. Wherever possible and economical, management should transfer human skills and labor to machines.

Essentials of motion economy are given in the accompanying table.

Essentials of Motion Economy

Use of the Human Body

The two hands should begin and complete their motions at the same time.

The two hands should not be idle at the same time except during rest periods.

Motions of the arms should be made in opposite and symmetrical directions and should be made simultaneously.

Materials and tools should be located to permit the best sequence of motions.

Hand and lower-arm movements are preferred to upper-arm and shoulder movements for light work.

Use of Machines

Wherever feasible, skills should be transferred to machines.

Conditions for the Work Place

Provide good illumination. Also provide for alternate sitting and standing where needed.

MOTION ECONOMY consists of performing work in the most efficient manner. By closely studying the essentials given here and applying them, a supervisor can eliminate much loss of time and motion, shorten distances, and improve working conditions for better efficiency and economy.

Points To Remember

The subject of work simplification is of vital concern to all mill management. Private industry must earn profits to survive. It also has competition to worry about. To help fill this gap, every mill needs a systematic way to improve its operations.

CONTINUED ON PAGE 148

How Rain Damage Affected Delta COTTON PROPERTIES

- Unseasonable weather in the Delta and other areas of the Mid-South lowered the quality of most cotton. Fiber properties hit hardest were grade and strength.

- Spinning values were lowered because of a high percentage of light-spotted cotton, but a fair amount of medium-white grades with normal tensile strength was produced. Break factors were down at all stages of the harvest.

By F. L. GERDES, Cotton Technologist, USDA, Retired

SPINNERS BUYING 1957 DELTA and other Central-area cotton would do well to (1) select early picked cotton, (2) avoid colored cotton, and (3) increase normal staple length used by $\frac{1}{32}$ in.

Cotton from this area, which normally has a high percentage of white fiber in the medium grades, was damaged badly by unseasonable weather in 1957. The grade was lowered, and a wide range of both white and spotted grades was produced.

In August, the crop showed prospects of producing the highest yield on record; and the first cotton picked was of good quality. But the frequent rains from the beginning to the end of the season caused tremendous losses in quantity picked and much damage to the quality of the late pickings. Frost also was a factor in preventing full maturity of the late prolific crop.

Better Grades Are Scarce

White Strict Middling and better grades constituted less than 50% of the crop, compared with 65 to 75% of previous recent crops. About 40% of the cotton was classed by the USDA as spotted even though it was predominantly light spotted. Almost 30% was classed as Strict Low Middling Spotted or better; and the remainder was classed lower.

The downward trend in grade since 1954, associated to some extent with the increased use of mechanical pickers, is a factor that makes the supply of better grades even more acute in the Delta. In 1957, there was a sharper decrease in grade of the early harvested cotton.

Staple length is determined largely by weather conditions during the boll-development period; and in 1957, conditions were favorable from this standpoint. With the exception of late harvestings, the records show the Delta cotton to be of normal staple length.

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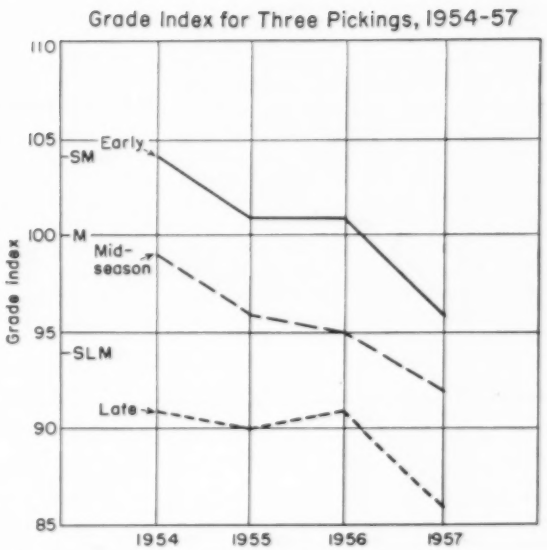
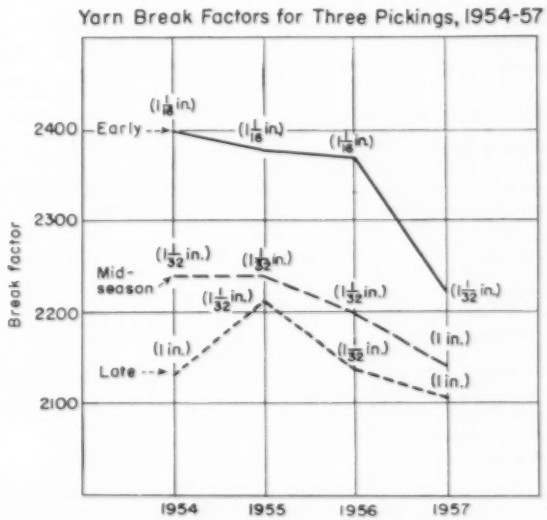


GRADE OF COTTON has been declining since 1954, but previously there has been a high percentage of white fiber in the medium grades. This year about 40% of the crop was classed as spotted.



YARN BREAK FACTOR went down sharply in 1957. Figures in parenthesis indicate the average staple length usually associated with the specific values shown.

Lowered grades, premature opening of bolls, and late harvesting contributed to staple-length penalties for the weather-damaged cotton. Actually, according to Fibrograph tests, the fibers averaged slightly longer in 1957 than in 1956, which indicates that length was penalized by the classers because of damage to other qualities.

Fiber uniformity ratios compared favorably with those of previous seasons.

Cotton Opened Prematurely

Micronaire values, also a quality element determined by rainfall during boll development, were exceptionally good for early and mid-season pickings. The late weather-damaged cotton showed the lowest Micronaire values for any stage of harvest during the previous three years, another index of prematurely opened cotton. The weight per inch of the late fiber averaged 4.1 micrograms, compared with 4.7 micrograms for the early cotton.

Maturity values of early and mid-season cotton compared very favorably in 1957 with those of previous seasons; the average was 80. But maturity of late-season cotton was off because of weather and frost damage.

The tensile strength, like many other fiber properties, is determined by weather conditions during the boll-development period. All pickings gave about the same average strength, approximately 78,000 psi. This figure is considered acceptable and is in the average range of strength for Central-belt cotton. However, in 1957 the strength was low enough to be the main factor in lowered yarn strength.

Nonlint Content Is Up

Associated with the lower grades for all stages of harvesting in 1957 was a higher percentage of nonlint content and manufacturing waste. But these increases were not as high as might be expected for the lower average grade.

The average grade of the early-season cotton, for example, was Strict Low Middling; yet the manufacturing tests yielded a waste percentage that is usually associated with Middling cotton. The grade equivalents, based on nonlint content, were Middling for both the early and mid-season cotton.

The sugar content and acid-alkaline values indicated fiber deterioration in the 1957 crop, since pH values above 7.0 when associated with low sugar content generally mean damaged fibers. Whether the low sugar content was caused by washing from rains or consumption by micro-organisms is not clear. Over the four-year period, sugar content shows a trend parallel to that of tensile strength and grade.

From the standpoint of neps in the card web, the 1957 crop was slightly better than the 1956 crop. The early and mid-season lots were superior to the late-season lots.

Break Factor Is Down

Yarn break factor, one of the most important measures of cotton spin-

FIBER AND SPINNING QUALITIES OF

Season	1954			1955		
Harvest	**Early**	**Mid-season**	**Late**	**Early**	**Mid-season**	**Late**
Fiber properties						
Grade index	104.0 (SM)*	99.0 (M)	91.0 (LM+)	101.0 (M)	96.0 (SLM)	90.0 (LM+)
Staple length (32nd in.)	34.0	33.6	33.3	34.1	34.0	33.7
Upper-half mean (ins.)	103	104	104	107	106	105
Uniformity ratio	80	80	84	78	79	79
Fineness (Micronaire)	4.3	4.4	4.3	4.5	4.4	4.4
Maturity index	78	80	81	81	78	77
Fiber tensile strength (1,000 psi.)	87	86	84	79	78	79
Non-lint content (%)	2.6 (SM+)*	3.6 (M)	4.6 (SLM+)	2.7 (SM+)	3.8 (M)	4.3 (M)
Sugar content (%)	0.12	0.14	0.07	0.12	0.11	0.08
Acid-alkaline value (pH units)	....	....	....	....	....	....
Manufacturing Performance						
Manufacturing waste (%)	7.5 (SM)*	8.2 (M)	9.0 (SLM)	7.1 (SM)	8.2 (M)	96 (SLM)
Neps (per 100 sq. ins. card web)	15	14	10	10	15	14
Yarn break factor (average)	2,400 (1 1/16 in.)*	2,240 (1 1/32 in.)	2,130 (1 in.)	2,380 (1 1/16 in.)	2,240 (1 1/32 in.)	2,210 (1 1/32 in.)
Yarn appearance index	95	99	98	103	102	104
Color of Yarn						
Gray						
Reflectance (Rd)				71.8	68.5	70.0
Yellowness (+b)				11.6	10.5	10.2
Bleached						
Reflectance (Rd)				82.7	83.2	81.2
Yellowness (+b)				3.1	2.8	2.9
Bleached and dyed						
Reflectance (Rd)				26.4**	28.2	29.2
Blueness (−b)				26.4**	25.4	24.9

Values in parentheses indicate average property usually associated with the specified value.
**Lower values indicate better yarn.*

ning value, apparently was influenced primarily in 1957 by fiber strength. Compared with 1956, this element of quality was lower in proportion for all stages of harvest.

The difference in the break factor at each stage of the two seasons was consistently equivalent to that usually associated with a difference of 1/32-in. staple length. To obtain break factors from the 1957 crop comparable to those associated with a given staple length in 1956, spinners apparently will have to increase their staple-length specifications by 1/32 in. The early picked 1957 cotton, however, was equally as good as the mid-season cotton during any of the previous three years.

Yarn-appearance grades generally were slightly lower in 1957 than in either 1955 or 1956, but they were as good as in 1954. For the most part, appearance grades are controlled by neps in the card web. Also, Micronaire values are closely correlated with this element of spinning value.

Gray yarn made from the 1957 crop was off in reflectance and yellowness, especially the yarn made from mid-season and late-season pickings.

After bleaching, yarn from only the late-season lots showed marked deficiencies in brightness; but the bleached yarns representing all stages of the harvest were poor from the standpoint of yellowness.

Bleached and dyed yarn showed deficiencies in color, with the early-season lots having lower penalties. The grade of the raw cotton was the factor affecting the results of the color tests.

Grades Have Wide Range

Comparisons of the average fiber and spinning properties of 1 1/32-in. cotton, graded Strict Low Middling White (one-fourth of the crop) and Strict Low Middling Spotted (one-sixth of the crop) show how grade contributed to variance in spinning quality.

Both grades were of the same staple length, but spotted cotton was lower in upper-half-mean length than white cotton. The spotted cotton also was poorer in Micronaire value, maturity index, tensile strength, and sugar content. These deficiencies are definitely reflected in lower breaking strength but only to a minor degree in poorer yarn appearance.

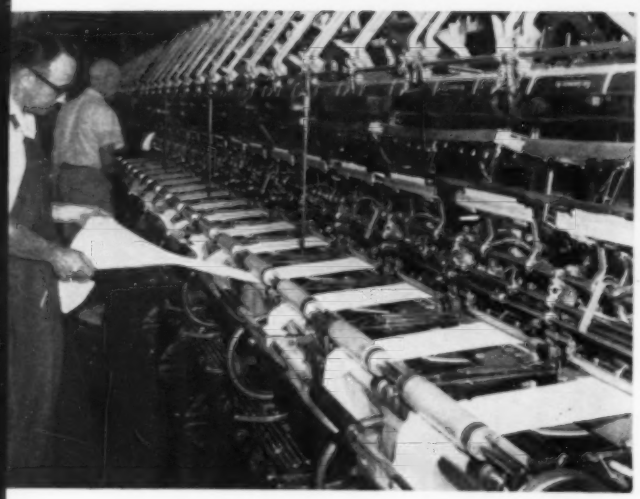
Color tests on the gray, bleached, and bleached and dyed yarn revealed that the spotted yarn was poorer than the white cotton only in the gray yarn. During either the bleaching or the bleaching and dyeing processes, the spots had very little if any effect on color.

The color of the cotton generally seemed to have less effect on neps than on breaking strength, although late pickings were objectionable. Color had very little effect on manufacturing waste in spite of the fact that there was a significant difference in non-lint content in favor of white cotton.

MISSISSIPPI DELTA COTTON, CROPS 1954-57

1956			1957		
Early	**Mid-season**	**Late**	**Early**	**Mid-season**	**Late**
101.0 (M)	95.0 (SLM)	91.0 (LM+)	96.0 (SLM)	92.0 (LM+)	86.0 (LM)
34.0	33.5	33.6	34.1	33.8	33.3
104	104	104	108	106	105
80	78	79	80	78	78
4.4	4.5	4.4	4.7	4.4	4.1
79	78	79	80	80	78
81	82	82	78	77	78
2.8 (SM+)	3.4 (M)	3.6 (M)	3.3 (M)	4.3 (M)	4.9 (SLM)
0.19	0.13	0.14	0.0	0.02	0.0
7.6	7.8	7.7	8.1	8.0	7.6
8.1 (M)	9.2 (SLM)	9.0 (SLM)	9.0 (M)	9.6 (SLM)	10.5 (LM+)
15	18	16	13	13	16
2,370 (1 1/16 in.)	2,200 (1/32 in.)	2,190 (1 1/32 in.)	2,220 (1 1/32 in.)	2,140 (1 in.)	2,110 (1 in.)
104	104	100	101	100	95
70.1	70.4	68.8	68.2	67.9	64.0
11.4	10.7	10.2	11.4	11.2	11.4
83.5	83.4	82.9	83.6	83.0	82.1
3.3	3.3	3.3	3.6	3.5	3.8
26.7	25.9	30.2	26.8	26.7	27.0
25.8	24.9	24.7	26.2	26.2	25.4

1957 DELTA COTTON was badly damaged in grade and strength, but many other properties were not seriously affected. Staple and uniformity were about normal. Micronaire values were good except for late pickings. Manufacturing waste was down a little but not in proportion to grade reduction.



ELASTIC for the leg bands is fed to the cup seamer with a device that feeds the right amount of elastic at the correct tension. The device is driven by a ratchet control.

FULL-FASHIONED MACHINE that knits panties is a regular hosiery machine with a few modifications. The panties are made in continuous strips, and each machine knits about 550 doz. per week.

How Alba Makes STRETCH PANTIES On Full-Fashioned-Hosiery Machines

Alba Hosiery Mills is finding ready sales for this new fashion item that is gaining in popularity. Converting full-fashioned-hosiery machines to knit stretch panties is not a big job. Among the modifications are—

- **Top rollers on the take-up attachment**
- **Sinker adjustment to knit heavier yarns**
- **Trough to hold finished panties**

BECAUSE OF A LAGGING MARKET for full-fashioned hosiery, Alba Hosiery Mills, Inc., Valdese, N. C., has changed some full-fashioned knitting machines to make products other than hosiery. One product that has met with good success is a full-fashioned stretch panty made on 48- and 51-gauge machines.

The machines are 32-section machines with 14½-in. needle bars, and they run at 60 courses per minute during normal knitting. The automatic welt attachments are not used and are fixed in their up position.

Several styles of panties are made. One style uses 2/50-den. stretch nylon, and another style is knitted from 2/30-den. stretch yarn. Both yarns are run directly from the cone with no lubrication or wetting agent.

One Size Is Knitted

One size of each style is made because the stretch properties of the panties allow for fitting of all sizes.

The sinkers are adjusted to draw a longer stitch to accommodate the heavier yarn. The needles are also pushed as far back as possible.

A top roll has been added to the take-up to help draw the fabric off the needles. The fabric then falls in a plastic trough at the front of the machine.

The panties are made one after the other. There is no stopping to start a fresh set. Each panty is separated with a few courses of cotton yarn.

How Panties Are Knitted

The top back of the panty is knitted first, and the fabric is widened on both sides to give shape to the garment. A second carrier is introduced halfway through the back of the panty to run across a section of needles in the middle of the bar.

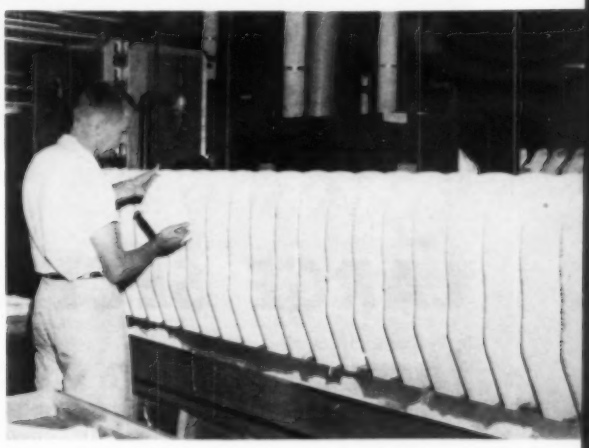
This carrier is threaded with 2/30-den. stretch nylon to form a reinforced crotch, which is suitably shaped with the carrier stops. Two extra reinforcing threads are used over 16 needles near the selvages of some panties to give extra strength at the seams.

The fabric is narrowed on each side to form the legs of the panties. Narrowing is done on 16 needles on each selvage, and the crotch is narrowed to about 60 needles at this point.

Widening commences at the halfway mark to form

INSPECTING is done after the sewing operations. The panties are stretched on forms, and the seams are examined for faults while under tension. Knitting faults are also checked.

BOARDING is done on a Turbo machine fitted with special forms. The panties are steamed for 40 secs. and then dried for 3½ mins. The projections on the form fit the panty legs.



the front of the panty. The reinforcing thread continues to form the front part of the crotch and is taken out about halfway through the leg widening. The front is finished by narrowing to form the waist.

A picot mark is made at the top of the garment to form a neat top when it is turned over to make a tunnel for an elastic waist. Cotton yarn is knitted at this point for several courses to form the separation.

This cotton fabric is cut by the knitter while the reinforced crotch is being knitted. The panties are marked with the section number, collected, and tied in 1-doz. bundles. Each machine knits about 550 doz. panties each week.

Test lots are knitted each week on each machine for size checks. Regular tests are also made on the Rolande device and on forms made to the shape of the panty.

After knitting, the panties are hung on racks and steamed in a regular steam box for 45 mins. to relax and set the stitches.

How Panties Are Seamed

A Union Special 413 machine with an attachment to feed the leg elastic is the first sewing machine to be used. The elastic is ⅝ in. wide and is fed from a reel on the bench.

The length of the elastic in each leg is checked periodically against a gauge on the front of the bench. This length is controlled with a ratchet on the feed device. The ratchet works from the sewing-machine drive and operates the adjustment of the knurled rollers.

The next operation is side seaming, which is also performed on a 413 cup seamer. The sides are turned toward each other, the elastics are matched up, and the sides are seamed from the leg to the top.

Side seaming is done with three threads while the elastic is attached with two threads. Nylon yarns are used for seaming.

Hemming is done on a Merrow machine. The waist elastic is cut to size and laid in the welt while the cotton top is turned over and seamed to form a tunnel. A loose course helps guide the operator in this job.

Each panty is then stretched on an aluminum form and severely tugged to check for seaming faults, knitting faults, and soiled panties. Panties that do not require mending are dropped in cotton bags for dyeing. Each bag holds 2 doz. panties when full.

Dye batches consist of 72 or 144 doz. lots. The panties are first scoured with caustic soda and soap in a paddle or rotary machine and then dyed in a neutral bath with a sulfonated castor oil.

Most popular colors are pink, blue, white, maize, red, and black. Acid dyes are used at 190° F. The goods are treated with a cationic softener and then extracted.

Boarding is done on a Turbo preboarding machine. The goods are given a 40-sec. steam cycle and a 3½-min. drying time. The forms have two projections that fit in the legs of the panties.

After this operation, the panties are laid, 2 doz. at a time, on a mobile bench on cloth spread on a board. A final inspection follows this operation.

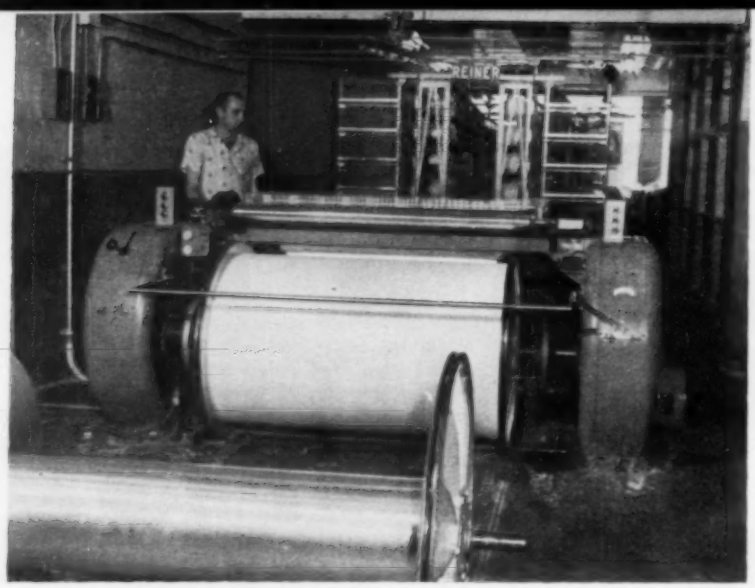
Inspection Follows Boarding

All panties are again stretched on boards and inspected for faults caused in dyeing and boarding. Faults are marked with a colored thread, and dirt marks are removed with a spot remover.

There are two methods of packaging. Some panties are wrapped around a paper sheet and placed in a polyethylene bag with the aid of a Telesonic machine. A heat-sealing machine is used to close the package and attach a label.

Alba's own branded panties, Pamper Pants, are tightly rolled and packaged in small transparent acetate cylinders. Twelve of these cylinders are then packed in an attractive box.

Alba Hosiery Mills controls the patents to make these panties. The patent numbers are 2,706,389 and 2,792,698. But other mills are now being licensed to manufacture these new products of the full-fashioned machine.



WARPER is in a room by itself. Section beams 38 ins. in diameter hold 50,000 yds. of 18.5s yarn and 39,000 yds. of 12.5s yarn. The warper runs at 650 yds. per min.

LARGE SECTION BEAMS

Increase Yarn Capacity 66%

Larger section beams recently added along with a new warper hold 66% more cotton yarn than the beams formerly used at a North Carolina mill.

- Warpers run 650 yds. per min.
- Slashers run 75 yds. per min.
- A special slasher creel occupies little space
- All beams are handled mechanically

NEW 38-IN. WARPER SECTION BEAMS at Carolina Mills' No. 3 Mill, Newton, N. C., contain 66% more yarn than the 30-in. beams they replaced. A comparison of increased yardage with the new beams is:

1. On 12.5s yarn, a 30-in. head contained 23,000 yds. of warp and a 38-in. head contains 39,000 yds.

2. On 18.5s yarn, a 30-in. head contained 30,000 yds. of warp and a 38-in. head contains 50,000 yds.

Beams are warped with 304 ends on 12.5s yarn and 327 ends on 18.5s.

In addition to more warps on each beam, this change-over has made it possible to reduce the standard allowance for slasher waste on the weekly waste-report summary.

The warps are beamed on a warper with 38-in.-dia. aluminum beam heads. Beams are 54½ ins. between heads. The warper runs 650 yds. per min.

All end breaks are recorded by the operator and are checked periodically by the mill control laboratory. Operating performance is recorded on a control chart.

Warping, slashing, and weaving at Carolina are under the supervision of one man, Assistant Superintendent Thomas P. Pruitt, Jr. This setup has proved to be an ideal one at the mill because one supervisor follows warps all the way through assembly.

The mill has only one slasher with seven 30-in.-dia. cylinders. The two cylinders next to the size box are coated with Teflon. They were coated four years ago and have not been recoated. The coating completely eliminated size from building up on any cylinders.

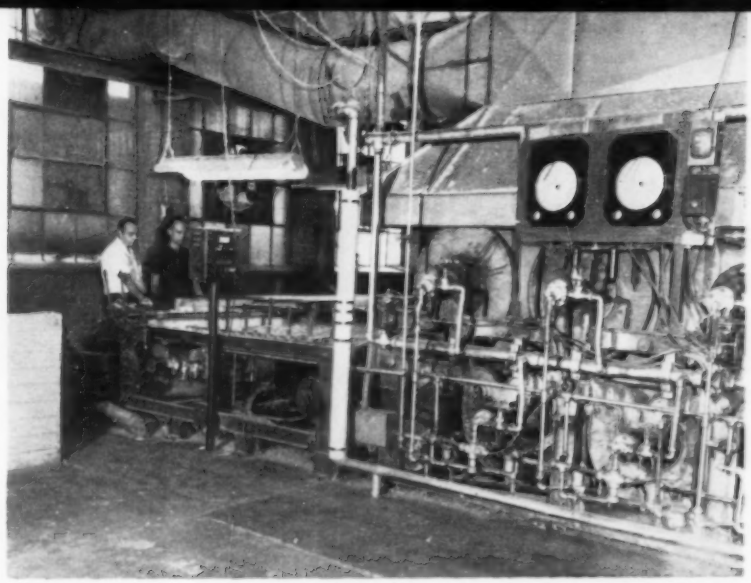
The temperature of the cylinders is controlled in three groups with controls. The temperature of the two cylinders next to the size box is 270° F., the next two cylinders are held at 264° F., and the last three cylinders at the delivery end are maintained at 258° F.

At present, only two yarn numbers are slashed, 12.5s and 18.5s. Slasher speed is 75 yds. per min.

Instruments Control All Variables

The size pickup of the warp is 12%. To check the size content, samples are sent to an outside laboratory at regular schedules. Moisture left in the warp is 7%.

Warp stretch is 2%. To control warp stretch, the yarn-tensioning device on the drive is set and watched closely; and the mill control laboratory checks warp stretch each week.



SLASHER is also in a separate room. It has seven 30-in.-dia cylinders; the first two cylinders next to the size box are coated with Teflon. Speed is 75 yds. per min.

Size cooking, storage, and temperature and level in the size box are controlled with instruments. There are one cooking kettle and one storage kettle. Size is cooked and pumped to the elevated storage kettle and feeds by gravity to the size box.

The slasher has a double size box. The two bottom quetsch rolls are stainless steel. The two top rolls are covered with synthetic rubber. Pressure on the quetsch roll is 700 to 750 lbs. and is applied by weights. A pneumatic presser roll is used.

Creel Was Made at the Mill

The slasher creel was made in the mill machine shop. And although 38-in. section beams are used, the creel occupies very little space. There are four creels in the lower tier and three in the upper.

Tension is applied to the beam heads so that they let off smoothly and continuously. The front end (nearest the size box) of a regular beam-tensioning cord is hooked into an eyebolt that extends through a hole in the bottom girder of the creel. A spiral spring is on the bottom of the eyebolt and is fastened with two nuts locked together.

The other end of the cord is also fastened to the bottom girder. A thumb nut at this position is turned quickly by hand to regulate the tension of the cord.

When empty beams are doffed and new beams put in the creel, the spring contracts enough for the cord to be lifted off the beam head.

Beam Handling Is Mechanical

For most warps, seven warper beams are run in the creel. The bearings for the creel are antifriction.

The warper beams are handled at the warper and between the slasher room and the warper with a monorail-hoist system. Handling the beams exclusively with the hoist avoids unnecessary dropping of the beams, and therefore they aren't banged out of alignment.

Each warp set has yarn for 14 to 23 loom yarn beams. Loom beams are 24 ins. in diameter. The yarn is leased at the slasher at every warp.

A slashed warp of 12.5s yarn con-

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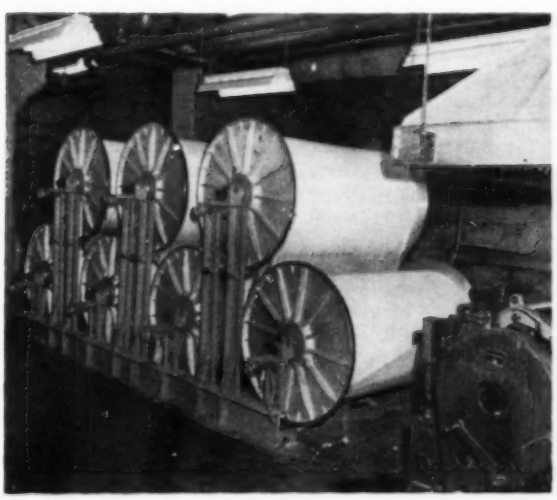
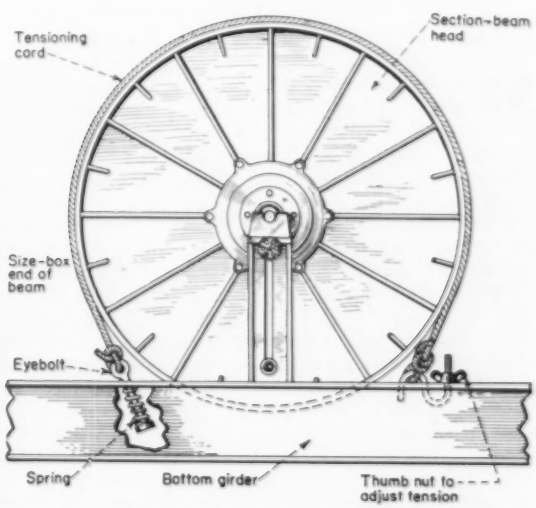


SLASHER CREEL was made in the mill machine shop. At full capacity of seven section beams, the over-all creel with 38-in.-dia. beams occupies only a small space.



TENSION is applied to the section beam by the spring at the front of the beam. The thumb nut at the back is turned quickly to adjust the tension accurately.

PLASTIC TRAY on the stand is tilted, and the welts of the stockings are laid where the operator can easily grasp them to draw them on the preboarding forms.

TABLE for finished stockings is plastic-topped and is pulled from under the tray before final boarding. The table is adjustable to the best height for the operator.

Plastic Trays Solve Hosiery BOARDING PROBLEM

• A British hosiery mill solved the problem of servicing boarding machines with stands that hold plastic trays. Each machine has a stand with adjustable rings for preboarded stockings and a movable table for finished stockings.

BY H. J. HALL, Bennett Bros. Ltd.

MOST MODERN PREBOARDING and final-boarding machines are the last word in efficiency, and they are often finished in attractive colors. However, there is seldom any servicing equipment issued with the machine. The mill is usually left to fit any type of bench or table that is convenient into the handling system.

The layout of a boarding department is usually ruined by irregularly placed tables, bins, and various containers scattered between the boarding machines.

To bring some uniformity to the boarding room, Bennett Bros. Ltd., Hinckley, England, introduced a system that uses plastic trays, which sit on metal stands at the side of each boarding machine. The system can be applied to most boarding operations.

The metal stands, which support the transparent plastic trays, can be adjusted to the correct height and angle to suit each operator. The front of the trays are open at the end and are raised to keep the stockings from falling out of the tray. This angle also brings the welts of the stockings nearer the boarding forms.

The trays are attached to the central column of the stand where the adjusting screws are located. A plastic-topped stripping table is located almost parallel with the loading tray.

This table is long enough to accommodate full-length stockings and is wide enough to allow each dozen to be folded. The table is also attached to the central column of the stand and is swung into operation by the operator before final boarding. The height of the table is adjustable to suit the operator.

Below the tray and table are two rings on which the 24x18-in. dye bags are hung when the stockings are to be preboarded. These rings also swing freely from the central column, and they can be swung out of action when they are not required.

Stands Are Mill Made

Each stand has a weighted metal foot to keep the stand balanced when it is fully loaded. The stands are painted to match the mill color scheme and to give a modern appearance to the mill.

Store cupboards were made to accommodate 16 plastic trays each. Each tray is labeled, and the trays are loaded in advance. The cupboard also insures that unloaded trays are stored safely, and each cupboard serves a number of machines.

CONTROLLED MOTOR HEAT
levels spinning-room temperature

With a new spinning-room air-handling system at Col. Elliott White Springs' newly modernized and enlarged Lancaster, S. C., mill, excess heat from motors is controlled as part of a vacuum waste-removal system. Advantages are—

- **Temperature is uniform throughout the room**
- **Temperature is lower in summer**
- **Motor heat is reclaimed in winter**

SPRINGS COTTON MILLS is using a new system of air control in its modernized spinning room at Lancaster, S. C. The results are positive control of temperature throughout the spinning room; hot spots from motor heat are no longer a problem.

The heat exhaust system [p. 123] removes motor heat from the spinning room as fast as it's generated. And this heated air is used again by the air-changing system if it's needed.

Springs has 90 new spinning frames equipped with the system; 63 frames are on one floor, and 27 frames are on the floor below. The new spinning frames are 25 ins. wide with 324 spindles of 3¼-in. gauge. But Springs' management men say the system can be applied as easily to frames 36 or 39 ins. wide.

The vacuum end-removal system on the spinning frames is coordinated with the heat-exhaust system to draw cooling air over the spinning-frame motor, which is completely enclosed in a metal housing.

Air from the vacuum system is drawn off from the center of the frame in a lengthwise triangular duct. Tubing from this duct connects with suction flutes along each side of the spinning frame. Waste from roving and suction air are drawn into the triangular duct.

But instead of going upward at the end of the frames, as conventional ducts are run, the duct of each frame connects with a metal housing that totally encloses the frame motor. There's a compartment to collect waste roving in the top of the motor housing.

When the new frames were started up, an operator removed the waste three times per shift; but waste removal is expected to be cut to twice per shift. The operator removes the waste through a hinged opening at the top of the enclosure.

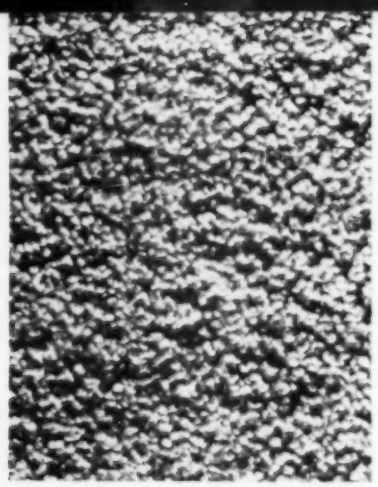
Air is drawn from the collection compartment through a screen over the frame motor. Then it is drawn off by a duct under the floor.

CONTINUED ON PAGE 140

SECTION MAN removes the enclosure from the spinning-frame motor to inspect the motor. Waste roving is collected in the top compartment, and motor heat is drawn from the motor.

SPINNER pieces an end picked up by a suction air flute connected to a single triangular duct that runs the length of the center of the spinning frame.

Technical data on the central air-handling system furnished by George C. Fryer, Pneumafil Corp.



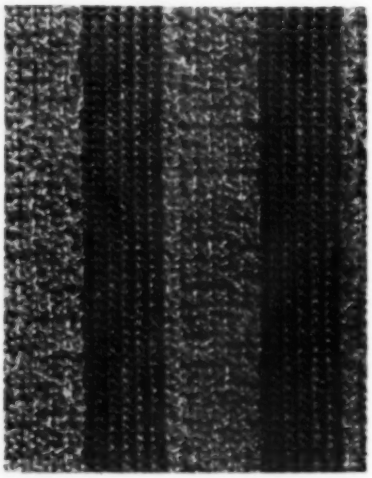
TEXTURED YARNS—
One of the Fastest-Growing Textiles

A few years ago, textured yarns were unheard of. Today, they are one of the fastest-growing products in textiles.

- What are textured yarns?
- How do they compare with spun and filament yarns?
- What are the problems in manufacturing?

These and other questions about these yarns are answered in this article.

By **JAMES H. BLORE,** Associate Editor, TEXTILE WORLD



FABRICS woven and knitted from textured yarns have interesting surface effects. The carpet fabric (above) is woven from 2,700-den. Avicron. The elasticized swimsuit fabric (below) is knitted from textured and untextured nylon.

TEXTURED YARNS, a new concept in textile manufacturing only a few years ago, are now one of the fastest-growing products in textiles. These yarns are filament yarns that have been treated so that the individual fibers don't lie parallel to one another along the axis of the yarn. (See the accompanying panel "What Are Textured Yarns?" for a definition of textured, stretch, and high-bulk yarns.)

For many years, textile manufacturers have taken the fibers produced by textile chemists and chopped the long lengths of fibers into small pieces. These cut fibers are then put through opening, picking, carding, roving, and spinning operations to be manufactured again into a long length of fibers in the form of yarn.

The object of carding, drawing, and combing is to make a mass of fibers lie parallel or more parallel. The object of texturing is to take a mass of paral-

What Are Textured Yarns?

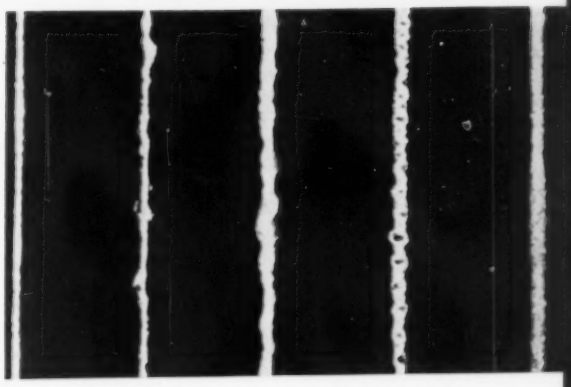
Textured yarns are continuous-filament yarns that have been modified so that the filaments do not lie parallel to each other. Fabrics made from these yarns have more cover, and they are softer than fabrics made from untreated filament yarns.

Stretch yarns, also modified continuous-filament yarns, are classed as textured yarns. Some textured yarns, however, do not stretch.

High-bulk yarns are spun yarns made by blending high-shrinkage staple fibers with low-shrinkage staple fibers. They are not textured yarns because they are made from staple fiber rather than continuous filaments.

Yarn	Texturing method	Fiber
Agilon	Heat-set over blade	Nylon, Dacron
Avicron	Water induced	Rayon
Ban-Lon	Heat-set in stuffing box	Nylon, Dacron
Bulked Celaperm	Air jet	Acetate
Helanca	Twist, heat-set, untwist	Nylon, Dacron
Fluflon	Heat-set under false twist	Nylon, Dacron
Lofted Chromspun and Estron	Air jet	Acetate
Mylast	Unknown	Nylon, Dacron
Saaba	Modified stretch	Nylon, Dacron
Skyloft	Air jet	Rayon
Spunized	Stuffing box	Nylon, Dacron
Superloft	Heat-set under false twist	Nylon, Dacron
Taslan	Air jet	All fibers
Tycora	Unknown	Nylon, Dacron

TEXTURED YARNS, now going into products ranging from carpets to sweaters, have their own characteristics and endless variations of yarn characteristics can be obtained by combining two or more textured yarns.



SPUN NYLON YARN (left) is compared with various textured yarns. The second yarn is lofted with an air jet, the third yarn is curled over a heated blade, the fourth yarn is crimped between heated gears, and the fifth yarn is crimped in a stuffing box.

lel fibers and make them lie less parallel.

Another object of texturing is to produce a yarn with the characteristics of a spun yarn. These characteristics include absorbency, soft hand, opaqueness, warmth, and cover—properties most desired in many textile materials.

Spun Yarns Lose Properties

Some desirable properties of filament yarns are lost when they are cut into short pieces and spun into yarn. These properties include strength, evenness, and resistance to pilling and shedding.

The new textured yarns have some of the advantages of spun yarns, some of the advantages of filament yarns, and some added properties such as resilience. Many textured yarns, however have a tendency to pluck; and some yarns are expensive to process.

While not displacing spun or regular filament yarns, textured yarns are going to make their impact felt in many end uses.

Most textured yarns are now being used in carpets, where the properties of resilience, strength, cover, and evenness are important. The market for sweaters made of textured yarns is growing by leaps and bounds.

Other end uses for textured yarns are in draperies, upholstery, shirts, dresses, underwear, socks, gloves, swimsuits, and bedspreads.

Stretch Yarns Have Texture

Stretch yarns can be classified as textured yarns. When stretch yarns were knitted or woven into fabric, they were observed to impart an improved hand to the fabrics. Most of these stretch yarns went into socks, where the properties of easy fit, comfort, and long wear have helped to create and build a steady demand for these products.

The first stretch yarns were made by twisting nylon yarns, setting the twist with a heat treatment, and untwisting the yarn. The next step was to cut out two operations and heat-set the yarn while it was held in a false-twisted state.

Many other methods were later used to add stretch to nylon yarns. Other methods were devised to add crimp to the filaments or arrange the filaments so that they did not lie parallel to the fiber axis. These latter yarns often provided the fabric with an appearance similar to fabrics made from spun yarns.

One of the early methods of producing textured yarns was to knit nylon yarns on a single-feed circular knitting machine, heat-set the tubular fabric, and backwind the fabric into yarn again. This method is costly and is rarely used today.

Fibers Are Crimped by Gears

Gears are also used to put crimp in yarns. Two heated gears are meshed together and nylon yarn run between the gears. Although this method is used today to put crimp in tow and sliver, little textured yarn is made by this process.

Another method used to crimp sliver is widely used on yarn. Crimp is imparted to the fiber by forcing a thermoplastic yarn into a V-shaped stuffing box. The degree of crimp depends on the weight applied to the sides or top of the stuffing box, the force required to push the yarn into the box, and the outlet size of the box.

The box may be heated while the fibers are crimped, or the fibers can be heat-set in another operation. The crimped and heat-set yarns are then wound on cones. Some machines process one thread at a time on each spindle, which has its own stuffing box. Other machines process up to several hundred yarns at once in one stuffing box.

Unusual configurations are given to individual fibers by drawing the yarns over a sharp blade. Because the blade is heated, the configurations are permanent when theromoplastic yarns are processed; and they become more pronounced when the yarn or fabric is wet processed.

One of the latest textured yarns is not thermoplastic but is made from rayon. The yarn is treated so that it acquires its crimp when immersed in cold water for a few seconds.

Air Jets Texture Yarn

Another texturing process that can be used on rayon and acetate filament yarns is the technique of passing the yarn across a jet of compressed air. When the yarn is fed faster across the jet than it is taken away, the jets blow small loops into the yarn.

Another recent development holds promise of an exciting future for textured yarns. Two processes are combined to form a totally different yarn made by either of the original processes.

Stretch yarns are now being modified to reduce their stretch but retain their bulk. Yarns that have gone through two or more texturing processes will increase during the next decade.

Each textured yarn can be made in many variations. Denier and filament size, temperature, and twist contribute

to different characteristics in the yarn.

Nylon has been the principal fiber textured so far, but rayon and acetate fibers are increasing in importance because of their low cost. Even glass fibers are being textured for better draperies.

Yarns Are Now Solution-Dyed

Nylon textured by one process will soon be combined with acetate or rayon textured by a second process. Solution-dyed yarns are being textured in increasing quantities to overcome some of the difficulties encountered in dyeing because of variations in the yarn from varying temperatures and tension.

The looped or lofted principle where texture is introduced with air jets has interesting possibilities when two yarns of different colors or fibers are fed across the jet and one yarn is fed faster than the other. The two yarns unite to form a fancy slub yarn.

The speed of the delivery rolls, the size of the jet, the pressure of the air flow, the twist in the yarn, the number of filaments, and the size of the filaments determine the end product. All conditions can be varied to produce lofted yarns with many different characteristics.

Little work has been done so far with fancy yarns, but the scope is enormous. Techniques such as momentarily lifting the yarn from the heated blade or the heater box introduces areas of untextured yarn. Similar effects would be obtained by varying the pressure of air across the jets of lofted-yarn machines.

How Prices Compare

Prices of textured yarns are higher than spun yarns of comparable sizes right now. A 350-den. natural lofted rayon yarn costs about 95¢ per lb., while a 15s combed cotton yarn costs about 63¢ per lb.

In heavy deniers, the price differential is less. A textured rayon costs about 62¢ per lb. for 2,200-den. carpet yarn, and 15-den. rayon staple is about 35¢ per lb. Processing costs of about 25¢ per lb. bring the price of spun yarn close to that of the textured yarn.

Royalties on processing most textured yarns are high. Some run as high as 22¢ per lb. Competition, which is coming along fast, will bring these royalties down to the point where textured yarns will be more competitive in price to spun yarns.

The advantages offered by the textured yarns sometimes offset the present price disadvantage. For instance, there are no slubs and knots. These properties are important in such operations as tufting, where fewer broken ends and choked guides mean an increase in production.

Better evenness of the textured yarns means a better-looking product. There is no lint when textured yarns are processed; and the finished products don't pill, fuzz, or shed.

Cover Property Is Important

Textured yarns have greater cover than filament yarns of the same denier, and some textured yarns have more cover than comparative-size spun yarns. This property has important economic aspects because yarns are purchased by weight and fabrics are sold by length or area.

A 15-den. 3-in. staple nylon spun into 0.9s cotton-system yarn has a resultant denier of 4,750 and is 0.0537 in. in diameter. A 2,100-den. nylon textured by a stuffing-box method has a resultant denier of 2,570 and the diameter is 0.1128 in. Although the weight per length is much lower than the spun yarn, the diameter is three times greater.

Textured yarns are sold by their original denier number, but mill men would like to see this method revised to include the final or resultant denier, because fabric constructions from the original and final yarns are much different.

Some Troubles Are Encountered

New techniques will have to be learned to process textured yarns. The protruding loops of nylon yarns often cause trouble on tufting and knitting machines. Tubes on tufting machines are being replaced with seamless plastic tubes to overcome these difficulties. More tension is placed on the take-up springs of hosiery machines. Tension meters are used to adjust the stitches on outerwear machines.

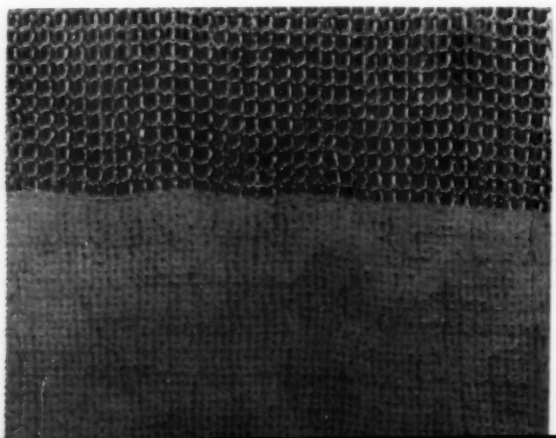
Tension in warping is important. Varying tensions often cause warp streaks in dyeing. Varying shrinkage in the yarns caused by yarn processing variations also cause trouble in dyeing.

Fabrics are sometimes narrower than fabrics of similar construction made from spun yarns. Allowances for a reduction in width and length must be made when textured yarns are knitted or woven.

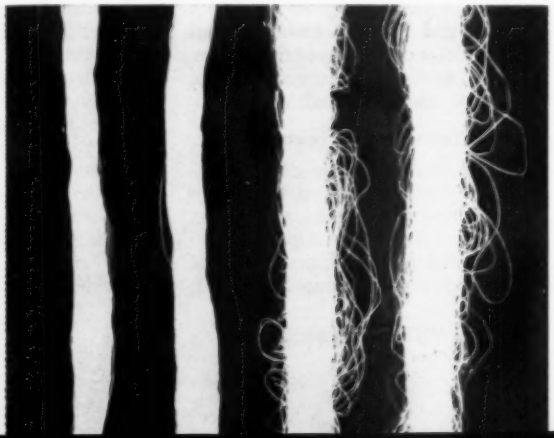
Throwing techniques of some of the textured yarns are jealously guarded. Throwsters, however, are happy about the growing market for textured yarns because they have experienced some lean years since knitters and weavers learned to process filament yarns without throwing. Provided costs are not kept too high, the future in throwing looks much brighter than for many years.

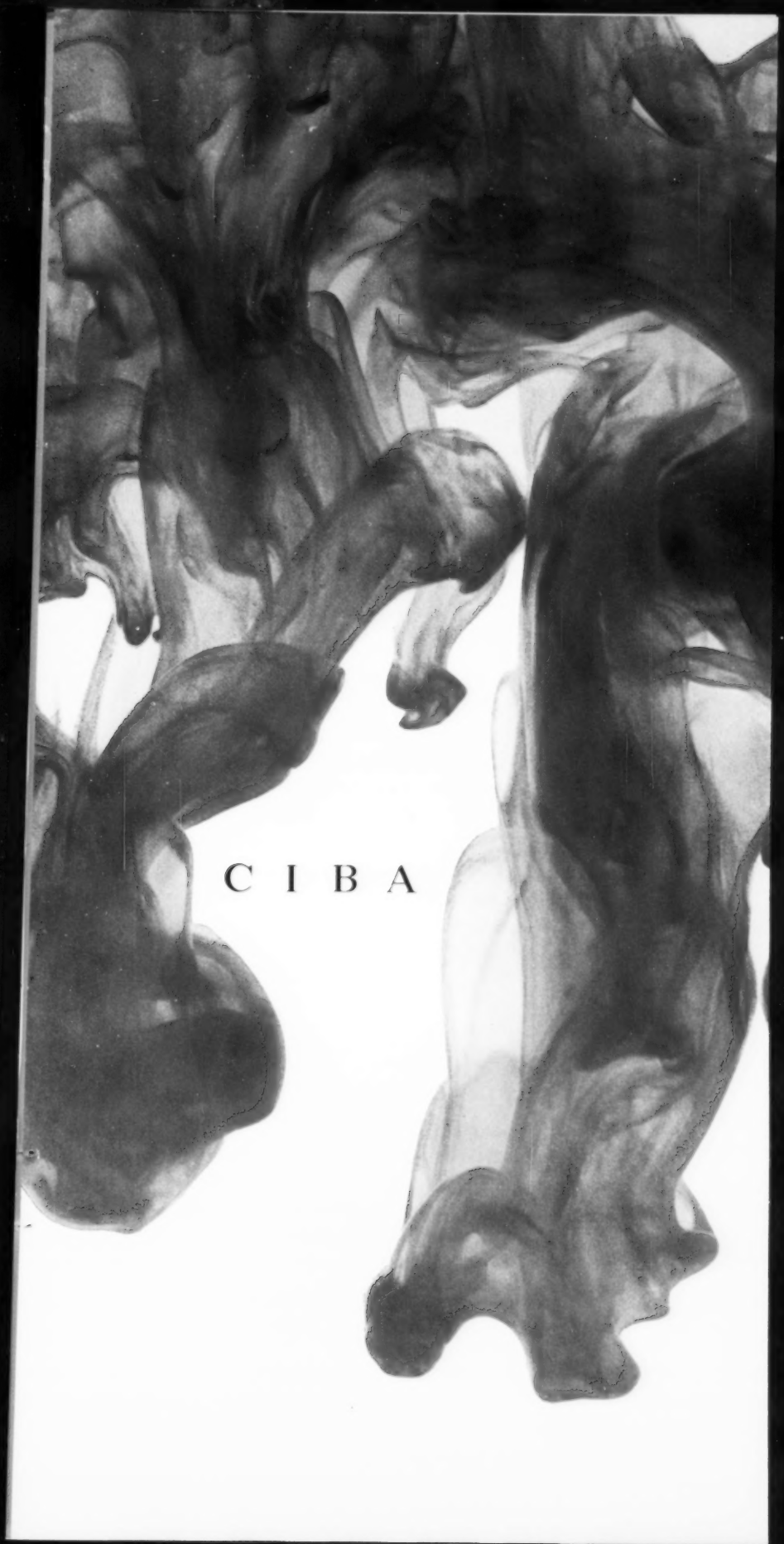
Spinners of high-bulk yarns for sweaters have already felt the pinch because many knitters have turned to textured yarns. The trend toward the greater use of textured yarns will continue as knitters and weavers discover new uses for this latest textile material.

COVER of textured yarns offers an important economic advantage. Fabric at the top is untreated 100-den. nylon. Fabric at the bottom is the same yarn after treatment with the Spunize method. Machine settings for both yarns are identical.



UNTREATED YARN (left) is three-ply 2,200-den. 15-den. filament rayon. The yarn is passed into a stream of compressed air, and the direction of travel of the filaments is changed to produce the Skyloft yarn (right).





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Far more than photomicrographs or "clogged" filter papers, the unretouched photo at left illustrates the exceptional dispersing power of Cibanone® vat dyes.

Cibanone Vat Dyes...
MICROFINED
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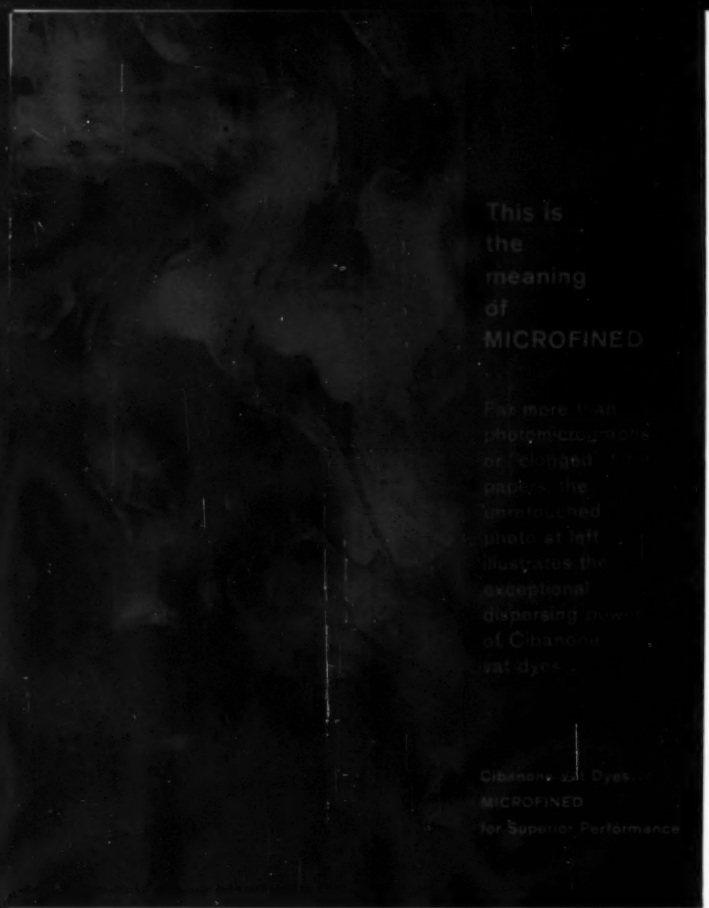


Cibanone Microfined Vat Dyes by first introducing the concept of particle size control established a new principle that proved so successful it has become widely imitated. But Cibanone dyes continue to lead—for CIBA now presents vat dyes that not only control migration in high temperature drying but are Microfined as well.

CIBANONE BROWN BGM MICROFINED
CIBANONE BLUE GFM MICROFINED

Vat dyeing types such as the new Brown BGM and Blue GFM now offer the same level speck-free dyeings and bright fast shades as before, plus a new high degree of freedom from migration in pigment-pad application.

For extra value in vat dyeing, ask about the new Cibanone Microfined non-migrating vat dyes.

C I B A

CIBA Company Inc.
627 Greenwich Street
New York 14, N.Y.

This Month in . . . TEXTILE CHEMICALS

Finishes Affect Permeability —

Tests made on 13 apparel fabrics by workers at the Texas Agricultural Experiment Station showed that various finishing materials affect air permeability of fabrics.

In six of the 13 fabrics, starch increased permeability but reduced it in two of the fabrics. In half the fabrics, a starch containing carboxy methyl cellulose increased permeability; but it had no effect on the rest of the fabrics.

Resin finishes decreased the permeability of four fabrics but had no effect on seven others.

CMC significantly increased the permeability of 12 of the 13 samples, an effect that persisted even when the amount of finishing material was increased. Resin, starch, and starch-CMC finishes tended to decrease permeability when the concentration was increased.

Tentative Fiber-Analysis Method —

A quantitative analytical method for determining the proportion of polyamide fibers in binary mixtures with cellulosic, polyester, or wool fibers has been announced by The Textile Institute, Manchester, England.

Called Tentative Textile Standard No. 48, it is based on the fact that polyamide fibers may be removed from mixtures by dissolving the mixture in 80% formic acid. Fabrics to be analyzed are first stripped of foreign matter and the fibers are identified. Mixtures of polyamide fibers and wool that have a wool content of over 25% should be analyzed by the Institute's B.S. 2822:1957 method.

Cotton-Rayon Blends for Wash-and-Wear —

Two-to-one cotton-rayon blends for wash-and-wear fabrics are being explored by rayon producers.

How the blend behaves during manufacture and after being resin-finished was reported to mill men at a meeting in Charlotte, N. C., last month. The work was done as a cooperative effort of American Viscose Corp., American Enka Corp., Courtaulds (Alabama), Inc., and Courtaulds (Canada).

Goods made from the two-to-one blend were prepared for finishing by standard procedures for all-cotton fabrics, and control samples of all-cotton 80-square were similarly processed.

A portion of the blend fabric was also mercerized successfully on both chain and chainless mercerizers.

Ethylene-urea resins were applied to a portion of the trials, and

→

melamine resins were used on others. Modifiers such as polyethylene and silicone resins were included in some formulations.

Evaluation of the samples brought out the following facts:

The resin-finished blends had a higher tensile strength in the filling than did the resin-finished all-cotton fabrics.

Strength retention fillingwise after 15 launderings is better for the blend than for the all-cotton fabric.

Flex abrasion tests indicate that the blend is slightly better initially than the all-cotton fabric but that the differences level out after 15 launderings.

The blend requires more resin than an all-cotton fabric to give equal wrinkle recovery; but because resins affect rayon less than cotton, the over-all strength of the blend fabric does not suffer.

The effect of chlorine on the resin-finished blends was generally considerably less than on the all-cotton control even after 15 launderings.

The wash-and-wear rating after 15 launderings gave the blend a slight edge over all-cotton fabrics in most of the trials.

Added advantages claimed for the blend include better whites, better drape, silky luster, and a more-luxurious hand.

Absorb Ultraviolet, Save Shade —

The lightfastness of many dyes is improved if ultraviolet absorbers are included in dyeing or finishing operations.

American Cyanamid researchers Dr. R. A. Coleman and W. H. Peacock found that substituted 2-hydroxy benzophenones are efficient ultraviolet absorbers and at the same time are stable to ultraviolet light.

Reporting to a recent Textile Research Institute meeting, Dr. Coleman noted that dyes with the best lightfastness are the dyes most improved by protection from ultraviolet rays.

At present, the substituted hydroxy benzophenones are used mainly to retard the effect of sunlight on plastic films. They are not substantive to cotton but will dye onto wool, Acrilan, nylon, cellulose acetate, Dacron, Orlon, and Creslan R. Textile applications are limited at present because of costs, but enough demand could surmount this obstacle.

Tufted-Carpet Printing —

Tufted carpets can be printed in up to six colors by a method now going through a shakedown period at Bradford Dyers' Assn., Bradford, England. The trick appears to be in the printing roller, which is made of a plastic material instead of metal. Print color is metered exactly so that there is no strike-through to the carpet backing.

According to reports, the first commercial runs will be in one-color patterns, with multicolor effects to follow. The initial installation will handle 54-in. carpet, but the process is expected to be applied to 12-ft. material.

Print pastes have been developed that do not stiffen the printed areas, and machine modifications for both reactive and nonreactive dyes have been worked out.

Oxygen Bleaches for Wash-and-Wear —

The chlorine-retention problem in cottons that have been resin-finished is being attacked from another angle.

Two chemical-manufacturing companies are ready to supply commercial laundries as well as the housewife with peroxygen-based products that don't rely on chlorine for their bleaching effect.

The chemicals are not new, but troubles arising from careless use of chlorine bleaches on resin-finished goods have spurred their introduction to commercial use.

Did You Know . . .

. . . **that static electricity should be removed** from fabric before treating it with water-repellent materials? According to U. S. Patent 2,820,719, goods padded in a solution of a quaternary-ammonium compound dissolved in petroleum naphtha become conductors and don't carry a static charge into the following water-repellent bath.

•

. . . **that in afterwashing fabrics finished with a durable water repellent,** ammonium soaps will have less effect on spray ratings than most syndets or sodium soaps? The reason is that any small amounts of ammonium soaps that might be carried through rinsing will decompose when the goods are dried, leaving only traces of a fatty acid. The more-stable soaps and syndets retain considerable wetting-back power even in trace amounts.

•

. . . **that durable resistance to microbial attack** can be imparted to cellulosic fabrics by impregnating them with phenyl mercury acetate? The compound is fixed in the goods by further treatment in the water-soluble polymer formed by condensing diethylene triamine with dicyandiamide.

•

. . . **that you can redden and deepen the shade of mineral khaki** by heating the dry dyed material to 120° C. for a few minutes? British Patent 778415 to P. F. Crosland gives more details.

•

. . . **that isocyanates and imene epoxy compounds,** now quite expensive and difficult to handle, could well be basic fabric-finishing materials in the future? Fred Fortess, manager of Celanese Corp.'s pilot dyeing and finishing plant, outlined their possibilities in a recent talk before AATCC in Washington.

This Month in . . .
TEXTILE CHEMICALS

NEW DYES AND CHEMICALS

Silicone Finish for Cotton

Sylmer . . . silicone water repellent is now offered in a form suitable for cotton and cotton-blend fabrics. The product produces water repellency that is durable to laundering and drycleaning and can be applied on conventional mill equipment. Dow Corning Corp., Midland, Mich.

Circle D-1 on Reader-Service Card

Milling Color

Brilliant Alizarine Milling Green 2GL p.a.f. . . . produces very bright shades on wool, nylon, or silk that have very good fastness to light, washing, and chlorine. The color works well with others in the Brilliant Alizarine Milling series and can be used to shade premetallized and chrome dyes. Sandoz, Inc., 61-63 Van Dam St., New York 13, N. Y.

Circle D-2 on Reader-Service Card

Polyvinyl Stearate

Flexbond PVS Beads Exp. D-108 . . . are offered as an ingredient in textile finishes to impart a water-resistant gloss to calendered finishes. Colton Chemical Co., Div. of Air Reduction Co., Inc., 1747 Chester Ave., Cleveland 14, Ohio.

Circle D-3 on Reader-Service Card

Softener

Lurasan . . . designed to produce a soft hand and improve luster on cotton fabrics, is an anionic product especially recommended for resin-finished fabrics. The softener is applied by the usual methods and resists yellowing or rancidity. A nondurable antistatic effect is imparted to man-made fibers by the softener. Onyx Oil & Chemical Co., Jersey City 2, N. J.

Circle D-4 on Reader-Service Card

Reactive Black Dye

Cibacron Black BG . . . is suitable for printing or piece dyeing. The color develops solid black shades that have excellent fastness to light and washing. The color can be applied by pad-steam, pad-thermofix, or exhaustion methods. Ciba Co., Box 25, Village Station, New York 14, N. Y.

Circle D-5 on Reader-Service Card

Durable Moth Repellent

Moth Snub D . . . provides durable mothproofing to woolen fabrics. The product is based on hexachlorepoxyoctahydro-endo-exo-dimethanonaphthalene. It is applied at the start of the dyeing operation and is absorbed by the fiber. It is durable to drycleaning, laundering, sun, rain, and perspiration. The product does not affect the hand or appearance of the fabrics. Arkansas Chemical Co., P. O. Box 210, Newark, N. J.

Circle D-6 on Reader-Service Card

Silicone Catalyst

Curite S . . . is specifically designed to be used with water repellents based on silicones. The product accelerates the curing of silicone emulsions and is free of rewetting properties that impair spray rating. The material is supplied as a milky dispersion and is compatible with all textile auxiliaries in general use. Proctor Chemical Co., Inc., Salisbury, N. C.

Circle D-7 on Reader-Service Card

Acid Dye

Capracyl Brown HR . . . produces bluish-brown shades on spun nylon and wool. The color builds up well to heavy shades with good fastness properties and is recommended for continuous dyeing of wool raw stock. It exhibits good affinity and gives level dyeings from neutral or slightly acid dyebaths. E. I. du Pont de Nemours & Co., Inc., Wilmington, Del.

Circle D-8 on Reader-Service Card

Vat Dye

Tinon Grey 2GR-F . . . gives exceptionally level dyeing results on cotton and rayon packages and beams. The color exhausts well to produce shades that have excellent fastness to light and washing. The dye has a low strike and very good dispersibility. Geigy Dyestuffs, Div. of Geigy Chemical Corp., Ardsley, N. Y.

Circle D-9 on Reader-Service Card

Mothproofing Agent

Duron . . . described as a modification of dieldrin, is now available in commercial quantities. The product imparts permanent moth-resistant qualities to woolen fabrics. It is nontoxic and does not affect the hand or color of woolen goods to which it is applied. Shell Chemical Co. developed the product. Duron Corp. of Signal Chemical Co., Cleveland, Ohio.

Circle D-10 on Reader-Service Card

Reactive Dyes

Remazal . . . brands a series of reactive dyes that combine chemically with cellulosic fibers. The colors are fixed by a steaming process and can be applied by direct-discharge- or resist-printing methods. Farbwerke Holchst A.G., Frankfort, Germany.

Circle D-11 on Reader-Service Card

Adhesive

NVD Adhesive . . . has been developed expressly to improve the bonding of vinyl compounds to Dacron and nylon backing fabrics. Applications on the order of 1 oz. per sq. yd. are said to produce bonds with strengths up to 20 lbs. per in., about four times better than is generally expected from older adhesives. B. B. Chemical Co., Cambridge, Mass., supplies the product in partially formulated condition. E. I. du Pont de Nemours & Co., Inc., Wilmington, Del.

Circle D-12 on Reader-Service Card

What Makes Good MERCERIZING?

You can pad cotton goods in caustic and then run them down a tenter frame, but you're not mercerizing in the true sense of the word unless—

- **You maintain proper caustic strength**
- **The dwell time is sufficient**
- **Pad-tenter tension ratio is right**
- **The afterwashing is efficient**

By ROBERT W. PINAULT
Assistant Editor
TEXTILE WORLD

MERCERIZING IS A CHEMICAL TREATMENT that can pay dividends if it is done properly. On the other hand, it can be an expensive and trouble-making process that produces poor dyeing, short lots, and a great many complaints about narrow finished goods.

CAUSTIC MUST BE RIGHT

One of the important things that has to be considered if first-rate mercerizing is to be expected is caustic concentration. For maximum luster and best color yield from dyes, the caustic should test 52 to 54° Tw. This concentration is accepted as ideal by most plants.

Goods that are mercerized wet generally carry 70 to 75% moisture into the saturator box and should leave with 90% caustic liquor. Some plants raise caustic strength to 66° Tw. when wet goods are being run to counteract the water content of the fabric.

In many cases mercerizing is done primarily to increase the color value on dyed goods, and luster is of secondary importance. A very definite increase in color value is obvious on goods that have been mercerized at 35° Tw., as compared to unmercerized goods. The choice of any particular strength of caustic for dyeing depends on the economics involved.

Fit Caustic Strength to the Job

The best way to decide which strength of mercerizing caustic is most economical from the standpoint of dye economy is to make trial runs at several different caustic strengths.

The variation in dye costs and the behavior of dyes under different conditions make it necessary to run comparative tests that will show the effects of varying degrees of strength on the dye to be used.

Based on a 75% pickup, if goods are mercerized in 35° Tw. caustic (16% NaOH) costing 5.8¢ per lb. on a dry basis, the cost equation can be set up like this:

$$\frac{0.75 \times 16 \times 5.8}{100} = 0.696¢ \text{ per lb. of goods}$$

If the same goods are mercerized at 52° Tw., the cost is:

$$\frac{0.75 \times 24 \times 5.8}{100} = 1.04¢ \text{ per lb. of goods}$$

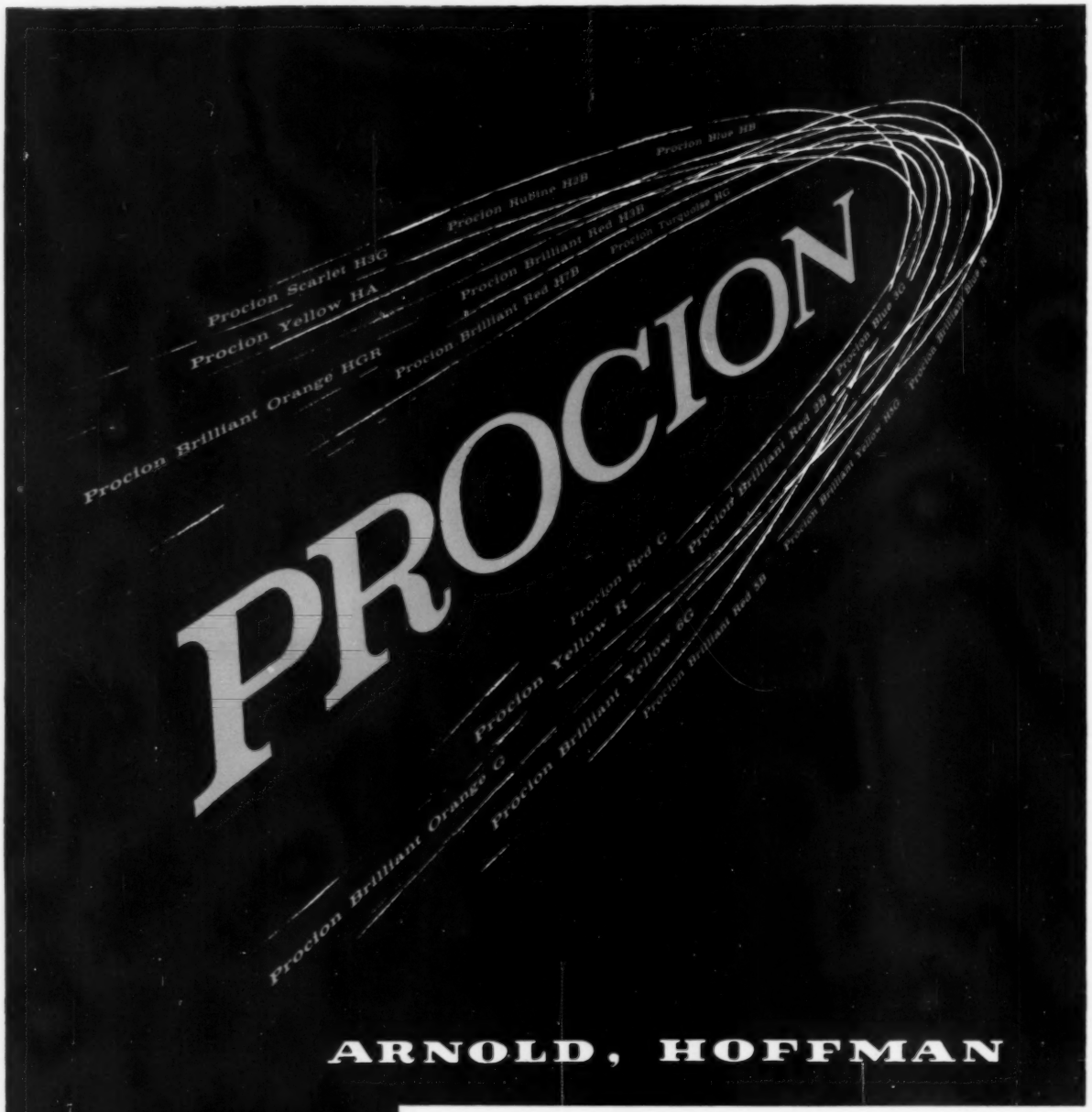
The spread of 0.34¢ per lb. of goods between 35- and 52°-Tw. caustic is small but nevertheless should be correlated with subsequent dyeing costs for the same depth of shade.

No account has been taken of the savings that accrue from the reuse of wash waters.

Goods should be exposed to full-strength caustic for a minimum of 35 secs. Modern ranges with adequate saturators and a 90-ft. tenter can produce this effect at 90 to 100 yds. per min., but the time element should not be cut in favor of speed.

CONTINUED ON PAGE 72

Data regarding chainless mercerizers and improved washing equipment was contributed by Wallace Taylor, Consultant



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CHEMICAL TREATMENT

Caustic Should Be Recovered

Very few, if any, plants today toss away the wash waters from the mercerizing operation. An efficient washing system coupled with adequate provision for handling a large volume of wash water will divide caustic costs over the entire operation.

The cheapest way to get double duty from the caustic in mercerizer wash waters is to use it for process as is without further concentration. Normally, wash waters should contain 3 to 4% of caustic soda. This concentration is adequate to use directly in preparatory stages such as boil-off machines, continuous bleaching ranges, kier boiling, and in some dyeing operations.

Wash waters can often be used without further treatment, but most plants prefer to put them through a sand filter to remove loose fiber and other insoluble impurities.

If gray goods predominate in the mercerizing operation, filtering is very necessary and generally requires a plate filter that can handle colloidal material like suspended starch, as well as fiber.

Plants that produce much more mercerizer wash water than can be handily consumed in process are going back to the idea of reconcentrating the wash waters to a 40 to 50% caustic content. The filtered caustic is put through a triple-effect evaporator that delivers caustic at a predetermined strength automatically.

Such evaporators were common at the turn of the century but gradually lost favor. Now the need to watch costs and to comply with stream-pollution regulations have re-emphasized their value.

How About Caustic Temperature?

A great deal of work has been done to find the best caustic temperature for mercerizing. It is safe to say that except for the creation of very special effects, mercerizing that is done at normal room temperatures of 80 to 90° F. is completely satisfactory. There should be provision to keep the caustic within this range because if the temperature does rise much over 100° F., inferior results can be expected.

Cooling coils in the saturator boxes and in the principal caustic-supply tank are generally adequate to take care of the situation. Well water is often cold enough to do the job without other refrigeration.

Heat in mercerizer caustic comes from four sources—hot goods, hot weather, heat of dilution, and heat of absorption. If nothing is done to counteract these conditions, a mercerizing bath can easily reach 120° F., which tends to reduce luster and to give a harsh hand.

Do Penetrants Help?

This question often arises in mills that mercerize gray goods. Such fabrics do not wet out easily, and often the mill chemist is confronted with problems of dyeing or finishing that are laid to poor penetration in the mercerizing process.

Penetrants that will work in caustic of mercerizing strength are available. In some cases, their cost can be justified; trials should be run with and without the penetrant to see if a penetrant improves the work.

Probably the most practical way to judge the differences between the trials with and without penetrants is to present finished unmarked samples from the runs to a group of competent mill men and get their opinions. Laboratory tests for strength and barium number are also useful in critical cases, but normally several expert opinions from within the mill will reflect customer reaction very accurately.

EQUIPMENT MUST BE RIGHT

Given adequate caustic at a reasonable temperature, goods must be mercerized on a range that is carefully laid out for the purpose.

The first consideration is the entering end. Today, most plants mercerize wet goods. The goods may be only singed and desized or partially bleached and will have been put in bins or trucks before mercerizing. To even up the moisture content, the first stage of the mercerizing range is a rewetting operation followed by mangling at 12 to 15 tons pressure.

Most ranges that are set up for wet work have two caustic-saturating boxes with a heavy three-roll pad between the boxes and another at the delivery end of the second box. In each box the fabric will normally make six to eight passes through the caustic over suitably placed rollers.

From the saturators, the goods go to the tenter, which should be of very heavy construction to stand the terrific stress put on it by the fabric, which is trying to shrink 25 to 30% after causticization.

Variations in caustic strength during a run will produce corresponding differences in shade on dyed goods. The caustic strength and the caustic level in the saturators should be kept constant. Automatic controls for caustic strength and level are common today, and to run without them is to invite trouble.

How Chainless Mercerizers Work

The chainless mercerizer maintains fabric length and width by means of a series of nip rolls and expanders. The cloth is in constant contact with seven or eight sets of squeeze rolls while it is being impregnated with caustic.

In the reaction chamber, Mycock expanders keep the goods to the desired width.

Efficient washing and neutralizing boxes follow the reaction chamber. Wash water flows countercurrent to the goods for the best effect.

The advantages of a modern chainless mercerizer include less possibility of cloth damage (no tenter clips) and good control of tensions between units.

Production of the chainless mercerizer is good. It is common practice to run two or more layers of fabric through the machine at once. Variations in width between the goods usually present no problems. Very narrow goods may be run side by side. Chainless mercerizers will handle two layers of cloth weighing 4 to 5 yds. per lb., three layers weighing 5:5 to 7 yds. per lb., and four layers weighing 8 yds. per lb. and up.

Watch Tension Between Units

Most mercerizing ranges based on tenters have excellent provision for synchronizing the speed of the various units so that cloth passes through without undue slackness or too much tension.

A point at which it is important to apply lengthwise tension is between the saturator and the tenter. Goods running at low or moderate tension at this point may actually be shrinking lengthwise to such an extent that if they were passing through water instead of caustic there would be a visible excess of fabric. The potential loss in yardage can easily run 5 to 10% when tension is too low between the saturator and the range.

If compensating gates are used between the units, they should be heavily weighted to keep tension high. If an all-electric control system is used to

synchronize the units, the settings of the control rheostats on pad and range should be determined by trial and error until the maximum workable tension between units has been found for each style.

GOOD WASHING IS VITAL

Once the caustic has done its work, it must be removed from the goods as completely as possible. Most of it can be washed out on the tenter by hot-water sprays. All of it should be removed before the goods leave the range.

Most of the grief that comes to mercerized goods in later processing can be traced to improper or incomplete washing on the mercerizing range.

Even dyeing, adequate width, good closing-out yardage, and low chemical costs are all dependent on good washing.

Washing starts on the tenter with a series of five or six sprays that deliver 10 to 40 gals. per min. of hot water at 130 to 140° F. This wash water may be fresh, but generally it comes from the overflow from the final stages of washing to be considered later. If it is from the final washing stage, it will of course carry caustic soda in varying amounts.

Weak caustic from final washing stages is satisfactory for washing out stronger caustic from goods if it is hot and plentiful and is kept below 8° Tw. in caustic content. The upper limit is 10° Tw.

Spray design is important. Current practice is to use fan-shaped deflectors on the spray heads that deliver a solid sheet of water to the goods. Perforated pipes deliver water unevenly at best and tend to clog up, which aggravates the unevenness.

In many mercerizers, wash water is pulled through the goods by a perforated suction plate mounted so that the underside of the cloth rides on the perforated plate. This system is particularly valuable on heavy or closely woven fabrics.

Six to eight sprays with their accompanying suction equipment are the usual complement for a 90-ft. tenter.

Keep Wash Water Hot

There is no actual economy in trying to wash mercerized goods with cool or lukewarm water. Steam savings are lost in the added costs of short lots, poor width, and dyeing difficulties.

A great deal of the heat used to produce hot wash water is recovered in some plants by means of heat exchangers that are set in the lines leading to wash-water storage.

After the partly washed goods leave the tenter, every bit of remaining caustic should be washed out or neutralized. Many ranges today have open-width washers made up of five or six compartments. Recent developments in sprays for these washers have improved their efficiency to a point where two compartments will do the work of five with older-type sprays. The sprays deliver 30 gals. per min. at a minimum temperature of 130° F. Good volume and high-speed jets help washing by this system.

Final wash boxes are usually set up so that the delivery-end spray is supplied with fresh water. Sprays in preceding boxes are fed by pumps from a sump that receives the overflow from the final wash box. In turn, water from the first box is fed to the spray system on the tenter.

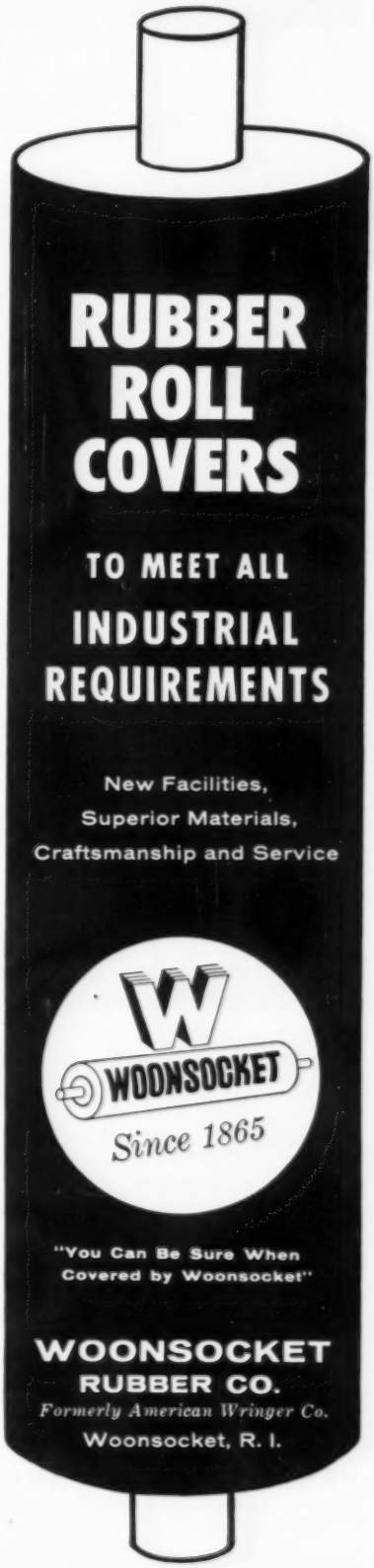
Another final-washing system that produces excellent results is the old-style recuperator. Fresh water is sprayed on the goods at the delivery end of this unit and makes its way back toward the entering end through a series of compartments. The recuperator is kept at or close to 212° F. by live steam. If the recuperator is operated at this high temperature, it is very efficient and will remove all but 0.1 to 0.2% of caustic from 4.00 to 5.00-yd. goods.

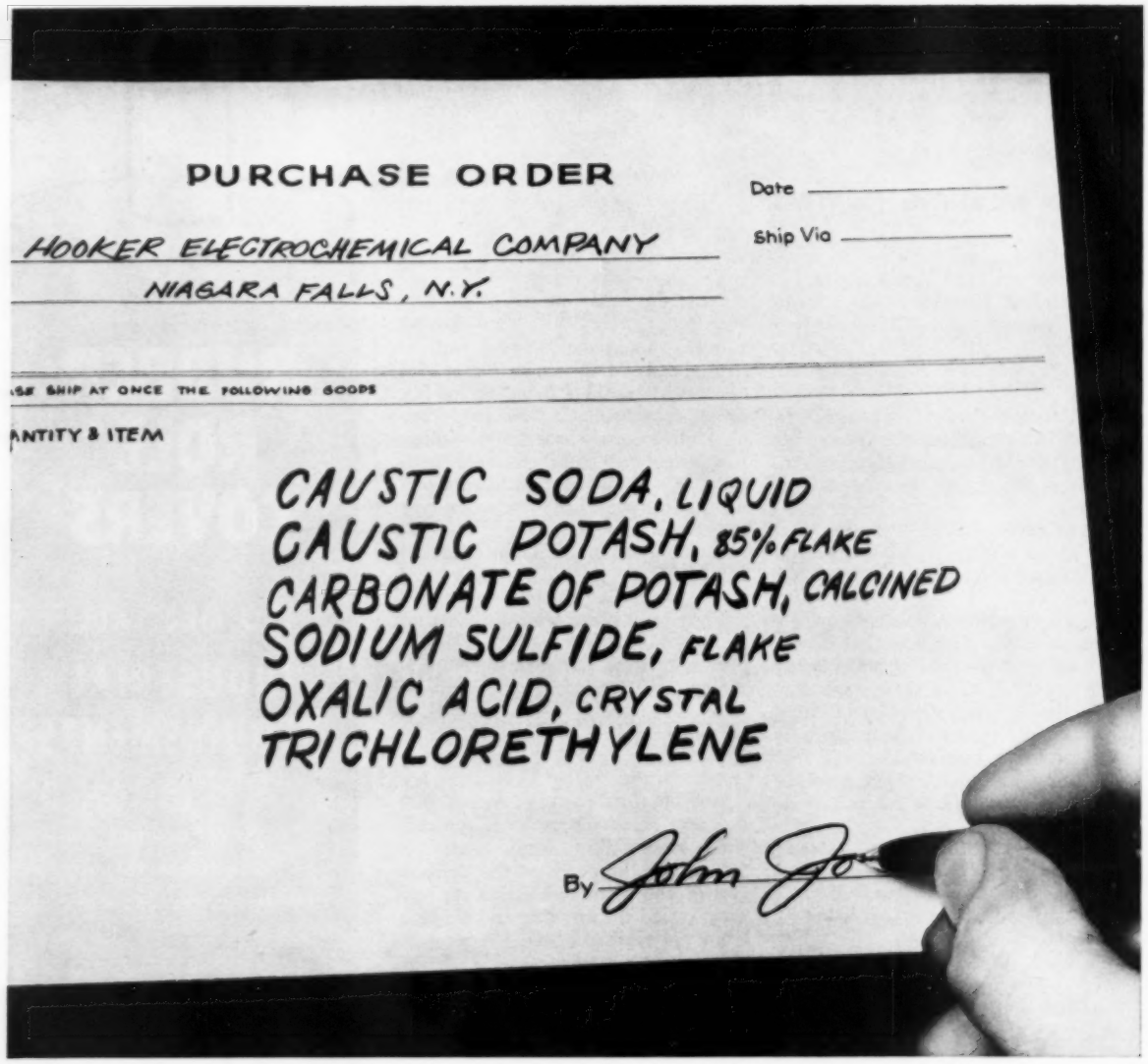
From this point on, washing operations can be considered complete if the goods are going directly to the bleach house.

If the goods are going to be dyed or if they are bleached and are going directly to finishing, all caustic should be removed.

Many plants neutralize the last traces of caustic in the final washing operation. Acetic acid will do this job safely but at considerable expense. The cost of neutralizing even small percentages of caustic mounts up; so the washing system should be kept at peak efficiency to keep acid requirements at a minimum.

Goods that are mercerized at the right caustic concentration for the purpose, under the proper conditions of tension, and are then thoroughly washed will present few problems to the dyer and finisher.





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FOUR-COLOR PRINT is being produced on the machine in this view. The machine will handle eight colors.

Mechanized SCREEN PRINTING Speeds Production at Bernard

Bernard Screen Printing Co, Brooklyn, N. Y., doubled its production by adding an automatic screen-printing machine to its existing six tables. The machine—

- **Produces better than 2,000 yds. per 8-hr. day**
- **Prints up to eight colors at once**
- **Gives excellent reproduction of fine-lined patterns**

BERNARD SCREEN PRINTING CO., Brooklyn, N. Y., doubled its production and widened the variety of patterns it can produce by adding an automatic screen-printing machine to its equipment.

Bernard handles many styles of goods from tie silks through acetate dress goods and 80-square cotton fabrics.

The principal producing units were six screen-printing tables prior to the purchase of the Stork automatic printing machine. Bernard was able to average about 2,000 yds. per day from the six tables and now gets as much again from the machine.

How Table Prints Are Made

Bernard receives its fabrics in scoured and dried form ready for printing. Lots are made up into rolls and mounted on a carriage that travels over the printing table and delivers the goods to the printing surface. A full cut, or about 80 yds., can be laid out at one time and is attached to the table by means of an adhesive surface on the table top.

Bernard uses lightfast disperse colors mainly for acetate and Arnel fabrics and picks them carefully to get the best resistance to gas fading.

After the colors are applied, the fabrics may be put through an ager or a cottage steamer. Choice here depends partly on the colors involved and the type of goods. Rayon-acetate crepes are put through the ager in an atmosphere of neutral steam. Taffetas are shunted to the cottage steamer, where they are steamed for 2½ hrs. at 4 lbs. steam pressure.

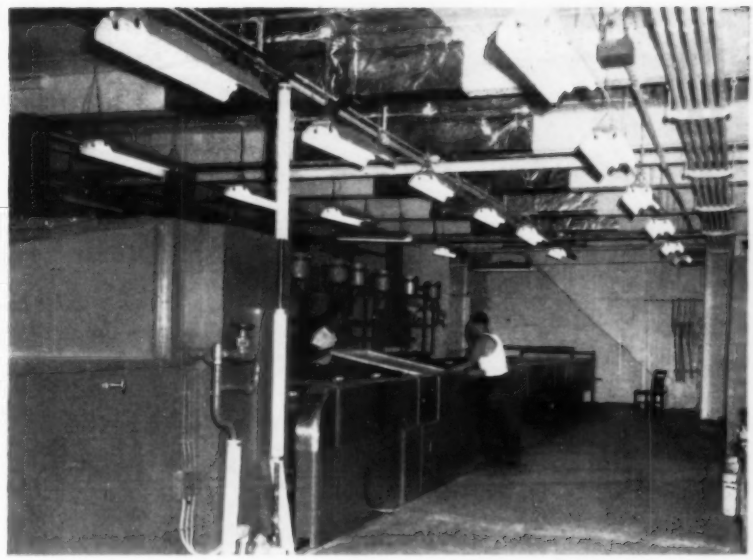
The plant's ager is 27 ft. high and can carry 14 strands of fabric at one time. Provision is made for adding acetic or formic acid to the steam when acid colors are being used.

After ageing, the prints are washed in rope form in a beck or in an open soaper, depending on style and color combinations. The prints are can-dried after soaping and shipped out for final finishing.

How the Machine Is Operated

The goods to be printed on the machine are mounted on a let-off stand and fed into a unit that automatically delivers the cloth at the proper tension to the gummed endless belt that provides the printing surface.

Once the end has been started, color is served to the screens from flexible hoses attached to the color reservoirs at one end and to a distributing manifold built into the squeegee assembly. At this point, the screens are raised above the fabric. When the screens



TWO MEN can handle all the work necessary to produce prints on the machine, which requires 70 ft. of working space.

have received their portion of color, the machine is started, the screens are lowered automatically, and the squeegees make one pass across the screens. The screens are raised at the end of the stroke, and the squeegees are lifted off the screens.

Color backed up by the squeegee then flows back under it; the blanket carrying the cloth advances one repeat, the squeegees and screens are lowered, and the squeegees make one stroke back to the other end of the screen.

Once a full set of screens has been printed on the goods, the results are examined closely to be sure that each screen has delivered its color properly. Both the amount of color and its fit in the pattern are carefully checked. Color delivery is controlled by adjusting squeegee pressure; fit is adjusted by moving the screens slightly in their carriers. The over-all fit, or repeats, are positioned from the main drive.

Thin Pastes Are Necessary

Because the machine uses only one stroke to produce a perfect print, the consistency of the print pastes has to be somewhat thinner than is usually the case for table-printing requirements.

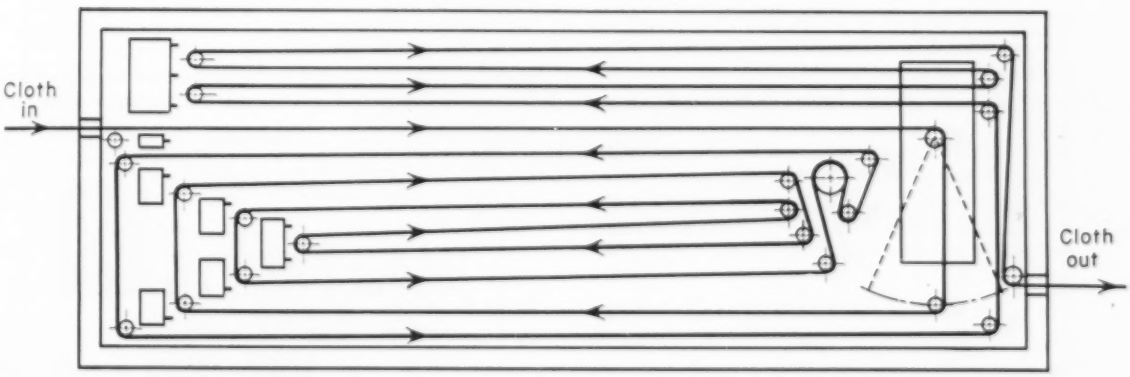
The balance is a delicate one: pastes that are too thin will not produce clean lines and tend to flush; but if pastes are too thick, the single pass of the squeegee may not be able to force color uniformly through the fine openings in the screen.

When fit and color impressions are judged correct, the machine is restarted and the printed goods are delivered to the dryer, which is a part of the range. The dryer delivers the printed fabric to a boxtruck, and the usual ageing and soaping operations are performed as with table prints.

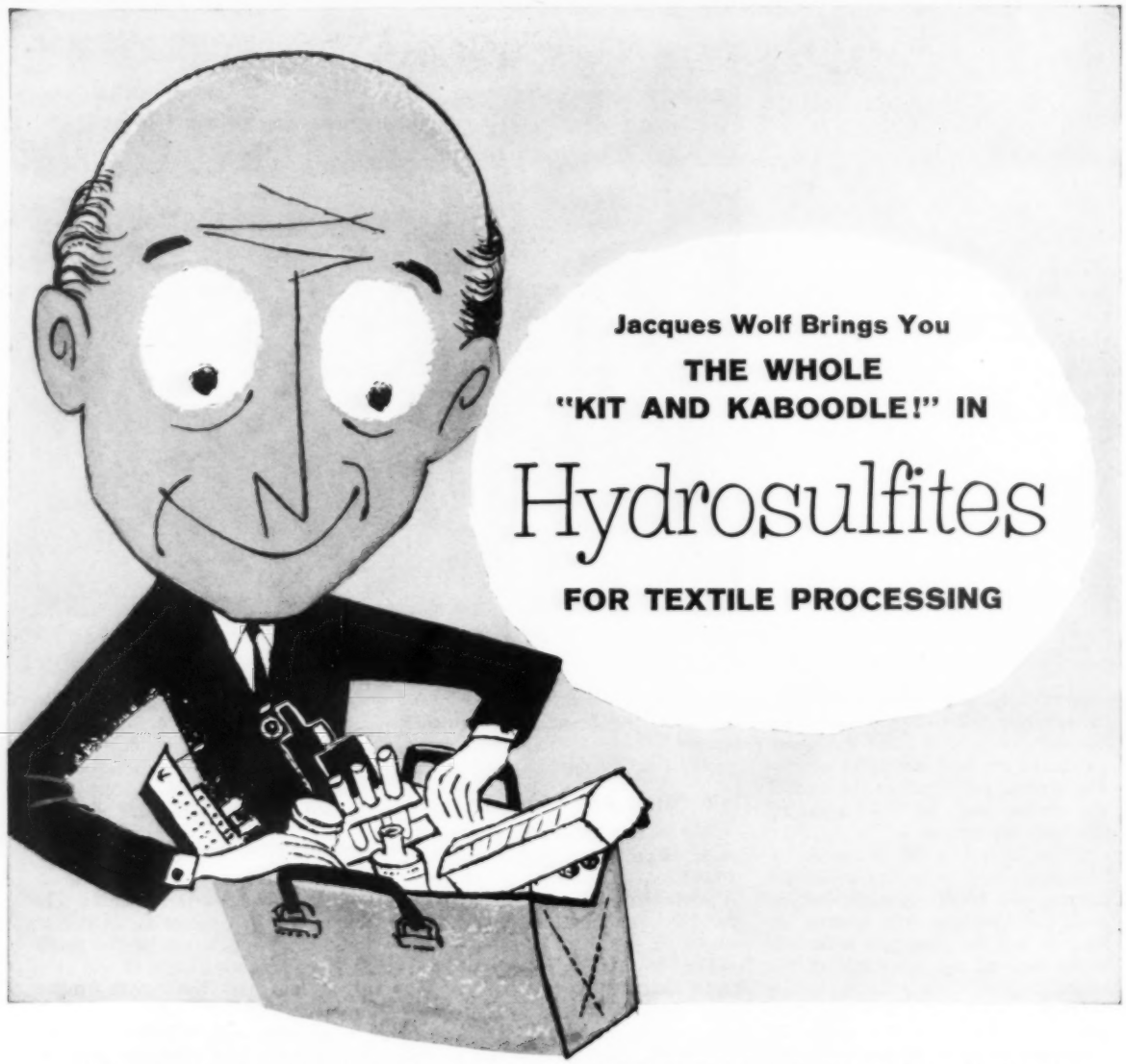
Two Men Handle the Job

A printer and a helper can maintain production on the machine. The printer's main concern is, of course, the over-all appearance of the goods; and he constantly checks fit and color impressions as the cloth moves through.

The helper sees to it that the color reservoirs are kept filled and that new lots are sewed on, and he helps in setting up the machine and washing up screens that have been taken out of service.



DRYER carries 40 yds. of cloth in a 10-ft. box and is threaded so that printed surfaces do not touch the first seven rolls.



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How To Check Evolved Formaldehyde In RESIN-FINISHED FABRICS

- Resin-finished fabrics often evolve formaldehyde during periods of storage, with consequent odor formation
- Here are three colorimetric methods of checking this condition, all based on the phenylhydrazine reaction with formaldehyde

THE AMOUNT OF FORMALDEHYDE that may be expected to evolve from resin-finished fabrics while in storage can be estimated by means of the test procedures given below.

The samples in question are stored in sealed Mason jars at temperatures and times appropriate to the conditions the cloth may be expected to meet.

Stored with the sample is an open glass vial containing a measured quantity of water or a glycerine solution to act as a formaldehyde absorbent and provide humidity.

The approximate relative humidity of the atmosphere in the jar can be adjusted by varying the amounts of glycerine added to the water as noted in Table 1.

The amount of formaldehyde absorbed by the water-glycerine solution is estimated by the temporary red color imparted to the solution when phenylhydrazine, potassium ferricyanide, and sodium hydroxide are added to the solution. The concentration of formaldehyde is determined by the depth of color.

Here Are the Reagents

An aqueous solution of phenylhydrazine hydrochloride is made by dissolving 15 grams of the reagent in water at 70° C. Dilute to 200 ml. at room temperature. Filter before use if turbidity develops.

Phenylhydrazine is very toxic and should be kept out of contact with the skin or the respiratory or digestive tracts.

The potassium ferricyanide solution is made by dissolving 5 grams of the reagent in 100 ml. of water. The caustic-soda reagent is a 10% solution of caustic water.

How the Test Is Made

Place a 10-gram sample of fabric in a Mason jar, and place with it an open vial containing 5 ml. of water or the water-glycerine solution.

Allow 20 secs. draining time in pipetting the viscous glycerine solutions.

Seal the jar and let stand for as long as necessary to meet actual cloth-storage conditions. Then remove the vial from the jar and keep it covered tightly until analyzed.

To check the formaldehyde absorbed by the solution, empty the vial into a 250-ml. volumetric flask.

It is important to do this work under a hood, wearing rubber gloves, rubber apron, and protective glasses because of the toxic effects of phenylhydrazine.

Rinse the vial into the flask with 4 ml. of isopropyl alcohol, followed by 1 ml. of water. While swirling, add 5.0 ml. phenylhydrazine-hydrochloride solution from a burette. Allow the contents to stand 10 mins. ±1 min.

Add 3 ml. of potassium-ferricyanide solution from a burette, and mix at once. Allow to stand 5 mins. ±0.5 min.

Add 20 ml. 10% sodium-hydroxide solution for a 25-ml. graduate, and mix at once. Allow to stand 4 mins. ±1 min.

Dilute the solution to 200 ml. with distilled water, and mix thoroughly; then dilute to a total of 250 ml. Within 20 mins., determine the amount of formaldyehyde by one of the following methods:

Nessler Tube Comparison

The colored solutions containing the unknown amounts of absorbed formaldehyde are compared against colored solutions made from reacting a solution of formaldehyde with phenylhydrazine to make a standard solution containing 40 ppm. formaldehyde.

This solution is diluted as shown in Table 2 to produce varying degrees of color to suit the sample being compared.

Table 1

	Parts by weight	
Relative humidity	Water	Glycerine
100%	100	0
65	32	68
50	20	80
35	10	90

VARYING RELATIVE HUMIDITIES can be produced in the test chamber by means of these mixtures of glycerine and water.

Table 2

	Volume in ml. of	
Ppm. CH_2O	Colored solution	Diluent
40	100	0
35	87.5	12.5
30	75	25
25	62.5	37.5
20	50	50
15	37.5	62.5
10	25	75
8	20	80
6	15	85
4	10	90
2	5	95
1	2.5	97.5

KNOWN AMOUNTS OF FORMALDEHYDE and phenylhydrazine are used to prepare a set of color standards with which unknown samples may be compared.

From a paper presented before AATCC by Osborne C. Bacon, E. I. du Pont de Nemours & Co., Inc.

The diluent is the same as the solution of phenylhydrazine previously prepared, except that 5 ml. of water replaces the formaldehyde absorbent. The solution is yellow and must be used to get the proper color value.

If the unknown color is between 40 and 80 ppm. formaldehyde, the sample may be diluted with the blank diluent to bring it within the color range of the standard for comparison. If the sample contains more than 80 ppm. formaldehyde, it should be diluted with water to less than 80 ppm. At higher concentrations, Beer's law is invalid.

Color Standards From Dyes

A standard for comparison can be made from carefully prepared buffered solutions of Rosophenine 10B and Methyl Orange.

Stock solutions are made as follows:

Alkaline Buffer Solution

Dissolve 53 grams C.P. Na_2CO_3 (anhydrous) in about 500 ml. of water. Dilute 10 ml. of glacial acetic acid to about 250 ml. in another flask, and add to the Na_2CO_3 solution with stirring to avoid loss of CO_2. Dilute to 100 ml.

Rosophenine 10B (C.I.225) Stock Solution No. 1

Dissolve 0.366 grams of dye in 400 ml. of water at 160 to 170° F. Add 25 ml. of buffer solution, cool, and dilute to 500 ml. The solution loses strength at the rate of about 1% per month if stored in diffused light.

Rosophenine 10B Stock Solution No. 2

Pipette exactly 25 ml. of stock solution No. 1 into a 500-ml. volumetric flask containing 25 ml. of buffer solution, and fill to the mark with water. Store in a brown glass bottle. This solution also loses about 1% per month in strength.

Methyl Orange Stock Solution No. 1

Dissolve exactly 0.360 grams of dye in 400 ml. of hot water containing grams of analytical-grade NaOH. Pour into a 500-ml. volumetric flask, cool, and dilute to the mark. Store in a glass-stoppered bottle in diffused light.

Methyl Orange Stock Solution No. 2

Pipette exactly 50 ml. of Methyl Orange Stock Solution No. 1 into a 500-ml. volumetric flask, dilute to the mark, and mix. Store in a glass-stoppered bottle in diffused light.

Table 3

Color standard in ppm. CH_2O	Milliliters of No. 2 stock solutions and buffer required		
	Rosophenine 10B	Methyl Orange	Buffer
1	2	5	5
2	4	5	5
6	12	5	4
10	20	5	4
20	40	5	3
30	60	5	2
40	80	5	0

DYESTUFFS are used to make standards for comparison in this table. The color of of unknown samples is produced by the phenylhydrazine-formaldehyde reaction.

The color standards are prepared as noted in Table 3 from the No. 2 stock solutions, the buffer solution, and water to make 100 ml.

The comparisons are made in Nessler tubes, as before.

Where a spectrophotometer is available, it is possible to obtain the parts per million of CH_2O from a curve based on light transmission at 515 millimicrons wave length, as shown in Fig. 1.

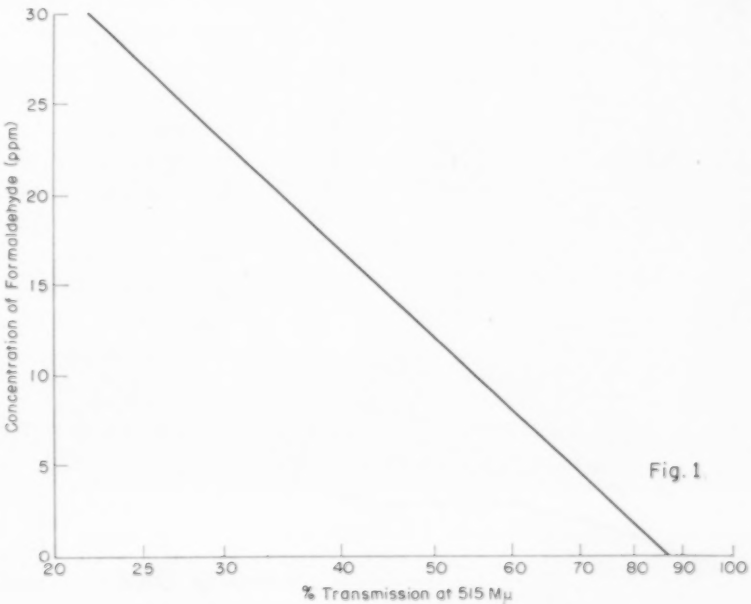
How To Calculate Results

The parts per million of CH_2O in the absorbent solution is translated into parts per million on the weight of the fabric by the following formula:

$$\frac{5}{\text{Residual ml. in vial}} \times \frac{5(\text{ppm. } CH_2O \text{ in absorbent solution})(\text{dilution})}{\text{grams of fabric}} = \text{ppm. } CH_2O \text{ on weight of fabric}$$

The dilution factor is applied either when the absorbent solution has been extended before the phenylhydrazine reaction or when the 250 ml. of colored reaction mixture is diluted with blank diluent.

The phenylhydrazine method is precise but gives comparative rather than exact values in this test because of a formaldehyde equilibrium between the fabric, the container atmosphere, and the absorbent.



A SPECTROPHOTOMETER is a convenient way of obtaining the parts per million of formaldehyde as a function of the light transmitted through the colored solution.

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How One Dyehouse PROCESSES YARNS at a Profit

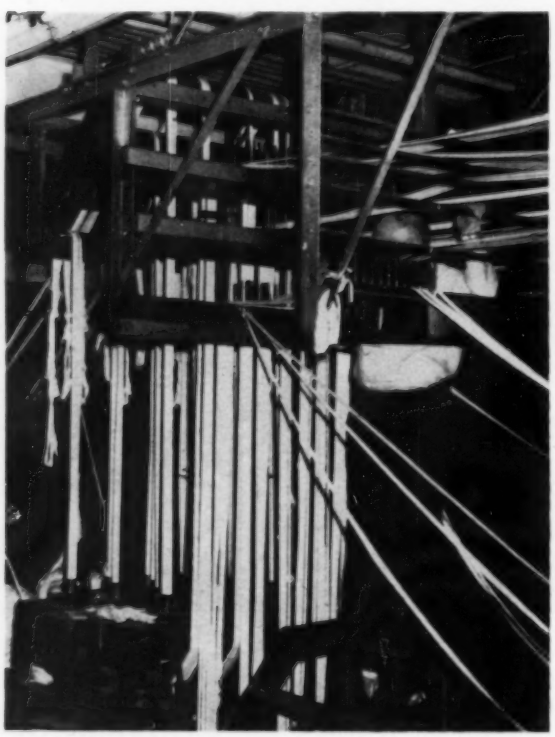
You can charge enough for your services to make money if the customer is convinced he's getting a good buy. This Eastern dyehouse sees to it that its finished yarns are worth the price by—

- **Turning out a top-grade product**
- **Merchandising to the consumer**

TO MAINTAIN ITS COMPETITIVE POSITION, an Eastern yarn processor bears down on modern dyeing and finishing methods and then merchandises the product aggressively to come up with a profit.

A variety of yarns, including cotton, cotton-Orlon blends, cotton-nylon blends, all-nylon, and all-Orlon yarns, is handled at the plant. The bulk of the production is high-grade mercerized yarn. The cotton-yarn processing steps outlined below are typical of the plant's methods.

The first step is to mercerize the yarns from ball warps. The mercerizing range is set up to handle up to 24 ends of warps at one time. The warps are first led through a box containing boiling water, which thoroughly soaks the yarn and prepares it for the following passes through caustic-soda solution maintained at 56° Tw.



WHEN A NEW SET is started, many ends from the creeled warps are tied into the previous run on the mercerizer.

This is the critical step in any mercerizing operation; and to insure that the caustic is always at the proper strength, it is constantly recirculated through a well where its strength is measured electrically and adjusted automatically.

From caustic saturation, the yarns pass into a series of hot washes and then into a weak acid wash and a final neutralizing wash. Yarn is dried in a temperature-controlled roller drier.

Wash Waters Are Recovered

All the wash waters bearing significant amounts of caustic are put through filters, and then they go to a three-stage evaporator. The process is economical and practical from three standpoints: (1) new-caustic purchases are reduced; (2) mill effluent is improved; and (3) hot condensate, varying from 311 to 200° F. from the different stages, is returned to the boiler house or the wash boxes; so steam consumption is very materially reduced.

The mercerized and dried yarns next go to the splitters, which divide the ball warps into the original yarn units that comprised each section. Each warp is then led to a quiller that winds the individual yarns on bobbins.

The bobbins are transferred to a winder, and the packages that will be loaded into the dyeing machines are made up. The standard package weighs 1¼ lbs. and is wound on an impregnated paper core that has a few layers of waste yarn wound on it to improve dye distribution.

The winding operation is also a critical step because the tension must be carefully regulated to build up a firm package that is still not so dense that the dye will have difficulty in penetrating evenly all through the package.

The final step in preparing the packages for dyeing is cupping or breaking down the square shoulders of the package to even up tensions all through the package.

Here's a Bleach Routine

For a full white on mercerized yarns, the packages are loaded into the dyeing machines and are boiled out at 190° F. for 15 to 20 mins. During the boil-out period the water is forced from outside in for 3 mins.; then the flow is reversed and it is forced through from inside out for 2 mins. to complete one cycle. Automatic timers control the direction of liquor flow.

The boil-out bath is dropped; and a fresh bath, to which 7½% of peroxide owg. has been added, is run in at 100° F. The temperature is raised to 180 to 190° F., and the load is held at this temperature for 1 hr.

A large proportion of the production is finished off with

an optical bleach to get the intense whites that these materials produce. Two types are used at the plant. One is added directly in the bleach bath; the other is added as a separate ingredient in a fresh bath.

Yarn that is to be dyed in light, clear shades is generally given a half bleach. Much the same procedure is used as for the full bleach; but the amount of peroxide is cut down considerably, and no optical bleaches are necessary.

Many Classes of Dyes Are Used

Practically all classes of dyes that are suitable for dyeing cotton are used to produce the shades. The end use and customer requirements are the prime factors in choice of dye.

Direct colors and developed colors are started at 100° F. and brought up to 180 to 190° F. within 30 mins. After the dyeing has proceeded for two full cycles, common salt is added; the load is let run for 30 mins. and is then sampled. Adjustments of salt or color are made, and the dyeing proceeds until the match is made.

Developed colors are dyed to a base shade and then diazotized and developed in the usual manner. An afterwash is given developed shades to remove loose color and brighten the shade.

Vat colors are applied in pigment form first. The initial formula is split into two portions added at 10-min. intervals. The dyeing temperature at this stage varies with the particular vat dye being used and will range from 110 to 160° F.

After a 30-min. pigmentation, the yarn is treated with a caustic solution for 10 mins., followed by hydro for 10 mins.; and then the reduction process is allowed to run 20 mins. to completion.

The yarn is washed in fresh warm water and then is oxidized in a 1% owg. solution of peroxide to complete development of the shade. A final soaping with a detergent brightens the shade and removes any loose color.

The laboratory checks each dye lot by knitting a length of fabric made from the outside, the center, and the inside of a package taken from each dye lot. If the yarn is unevenly dyed, the differences show up sharply at the dividing courses between yarn from different areas of the package.

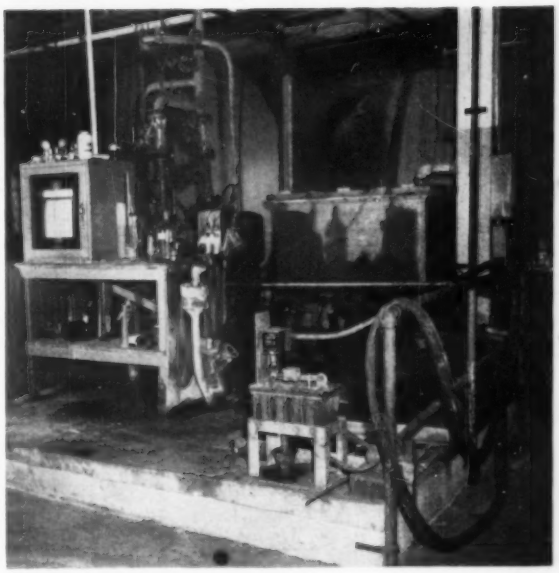
How Merchandising Helps

This plant hasn't relied on the better-mousetrap theory to keep and add to its customers. Yarns in the past have largely lost their identity as soon as they left the yarn mill. The garment manufacturer worked them up into consumer merchandise that was generally branded with his name alone. But this mill's management reasoned that making the consumer conscious of the yarns that went into his purchase would pay off.

Now garments bear labels identifying the yarns, and a national advertising campaign interspersed with fashion shows calls attention to the product at many different levels.

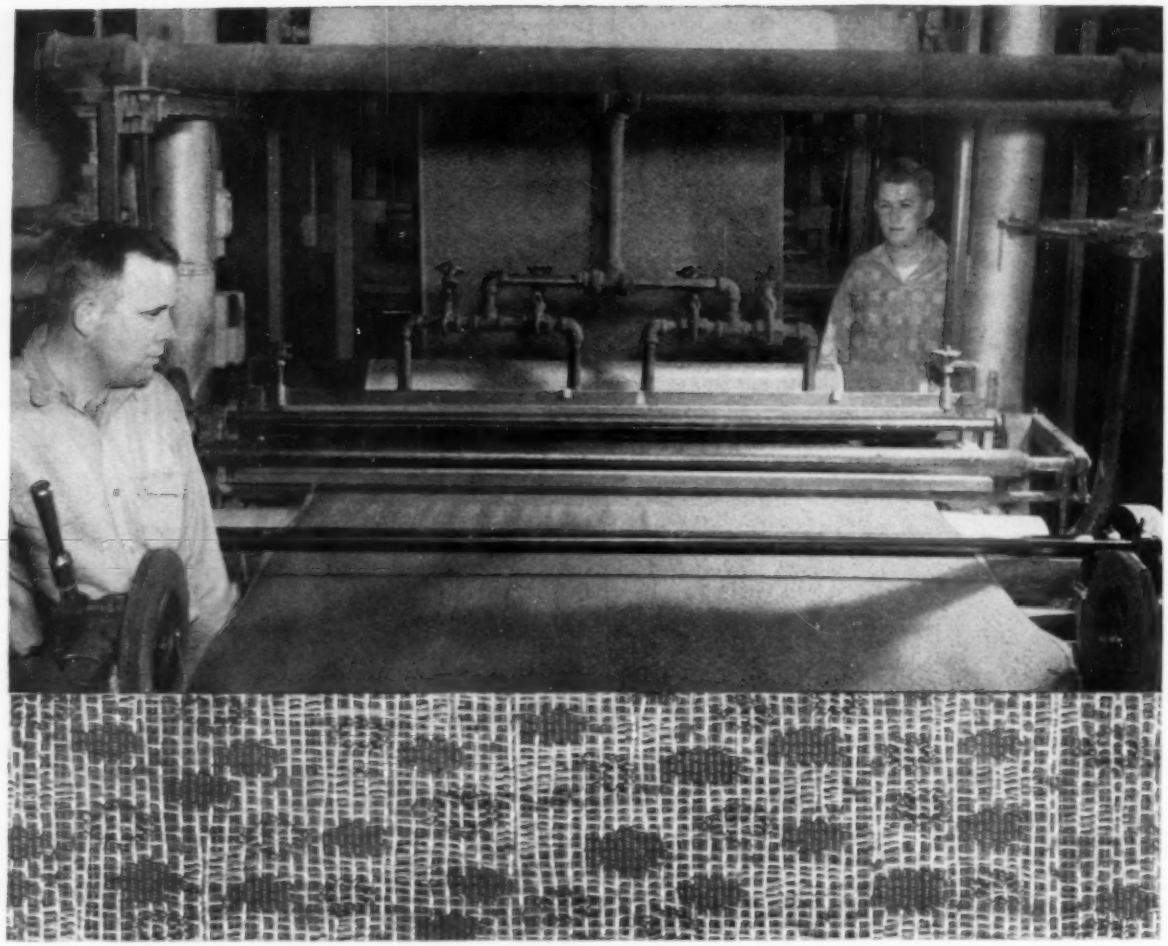
Management is also alert to any processing step that may add value to its product. As an example, customers have recently been offered yarns treated to resist bacterial attack. Garments made from these yarns will resist mildew, perspiration odors won't develop in them, and the growth of many common forms of bacteria is inhibited.

This idea has already created considerable interest among the plant's customers. The new service ties in well with management's philosophy that even better mousetraps are a drug on a market that doesn't know about them.



CONTROL CENTER automatically maintains and records caustic strength in the well that feeds the mercerizer. Pumps circulate caustic between the well and the mercerizer.

STAINLESS-STEEL PACKAGE MACHINES are used for production purposes. The plant has a number of machines of varying capacities.



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METHODS and INSTRUMENTS
Feature Cotton-Clinic Round Table

Cotton Research Clinic reports presented at Pinehurst and briefed in this issue cover:

- Effect of combing on staple length
- Quality-control practices
- Effect of air on carding
- Half-lap needling
- Three testing instruments

Other papers were digested in the April issue of TEXTILE WORLD

Air Has Little Effect on Carding Operations

• Carding force basically required is a resistant force strong enough to open and separate tufts into individual fibers and spread them over the entire surface of the cylinder clothing before they reach the doffer. Flats are unnecessary if the cylinder is enclosed by a special cover.

By **A. L. MILLER, R. S. BROWN, and R. A. RUSCA,** Southern Regional Research Laboratory

An investigation of carding aerodynamics indicates that air contributes a relatively minor part in the actual mechanics of fiber separation and is in general more detrimental than helpful.

The objectionable aspects of air have led to the development of a method of carding without revolving flats [TEXTILE WORLD, April, '58, p. 55].

One of the major difficulties in investigating air currents in the card is the minute pressures involved. Previous studies were hampered by the fact that gauges are not sensitive enough to accurately measure pressures in the range of 0.001 in. of water. In the past few years, electronic instrumentation has overcome this handicap.

The studies were conducted on a 1948 standard revolving-flat card, carefully ground and adjusted. Measurements were made at three locations across the width of the card 6 ins. from each side and at the center.

Static and velocity pressures were determined between the flats and the main cylinder at three points: at the clearance between the tips of the wires of the flats and cylinder, at the knee of the wire on the flats, and at the base of wire on the flats.

Lickerin Was Covered

An investigation was first made of the static air pressures at the back of the card. Difference in pressure above and below the nose of the feed plate revealed that considerable air was blowing through the fringe of the lap and following the lickerin down to the mote knives.

Elimination of the air entrained by the lickerin was done by replacing the lickerin cover with a box enclosure with enough screen area to allow air to escape. The arrangement removed excess air above the lickerin and resulted in better trash removal and less lint loss in the motes and fly. However, the device was not practical since the screen area was soon closed by a coating of fibers, which indicated that considerable fiber was being carried around by the lickerin.

A modified lickerin cover was made to relieve air pressure and filter out the fiber and return it to the feed. Good results were obtained, and patents are pending.

Measurements of static air pressures between the cylinder and flat bars showed a decrease in pressure for the first six bars, which accounts in part for the rapid loading of flats in the first few positions. From this point on around the cylinder, there is a slightly negative static pressure that decreases sharply at the last few flat bars as they leave the cylinder. Air drawn in under the front plate is discharged at the point of transfer between the doffer and the cylinder.

The entire flat assembly was replaced with a highly polished steel cover made airtight and set 0.010 in. from the cylinder. Pressure measurements were made at points similar to those made on the flats.

With the flats replaced by the smooth cover plates, theoretically no carding was done and there was an opportunity for determining the condition of the cotton on the main

cylinder as it was deposited by the lickerin.

Doffer Was Replaced

The doffer was replaced with a special stripper roll to strip all of the cotton from the cylinder with a minimum of distortion. Draft appeared to take place between the tufts of fiber rather than within the tufts, and the tufts were not broken down to any extent. The specimens of cotton removed showed that cotton is transferred from the lickerin to the cylinder predominantly in the form of tufts rather than as individual fibers.

The card was then operated with the cylinder enclosed by the steel cover in place of the revolving flats. Settings ranged from 0.05 to 0.375 in. The force acting upon the fibers in the carding area was that of the air and the friction of the surface of the cover. Evaluations were made by visual comparisons of the appearance of nep boards. No differences were detected in the web for the different settings.

This experiment indicated that the air was relatively ineffective in the carding area of the machine and that the fibers must be subjected to mechanical action to accomplish any degree of fiber separation. The investigation further indicated that the average mechanical carding force is about 40 times greater than the shearing force of air currents; the pulling force is about 4,000 times the shearing force of the air currents.

Combing Can Improve Grade and Staple of Cotton

• By removing short fibers and trash at the combers, Middling 1 1/16-in. cotton can be converted into the equivalent of Strict Middling 1 3/16-in. cotton worth 5½¢ more per pound.

By **CARL D. BRANDT**, Research Consultant, Whitin Machine Works

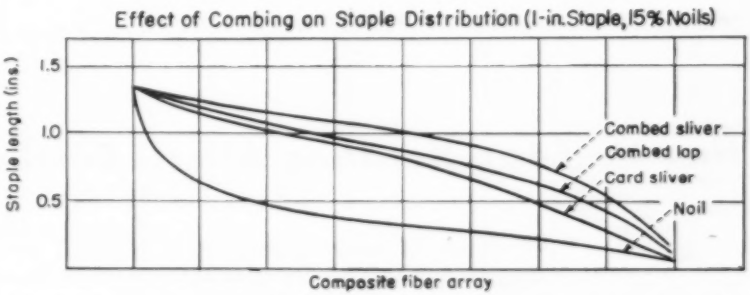
The amount of comber noil removed is determined by three adjustments: (1) the distance between the bite of the detaching rolls and the nose of the nipper assembly; (2) the closeness to which the nippers approach the needles of the half lap; and (3) the position or adjustment of the top comb. It should be possible to vary the percent of noil removed from 5% to 30%.

Over a period of time, there has been a rather steady increase in the weight of laps prepared for combing until today a weight three or four times that of the early years is common. If high production rates are to be attained, a rather heavy lap must be used.

With old conventional lap preparation, an increase in lap weight will require a reduction in the draft at some point along the line. This condition results in less straightening of the fiber and puts a greater load on the comber.

Lap Weight Affects Noil

In one test, a comber was set up to remove 16% noil from a lap weighing 800 grains per yard. Then with no mechanical readjustment these laps were replaced with others weighing 900 and 1,200 grains per yard. The results were: 16.0% noil removed from 800-grain laps, 17.8% noil removed from 900-grain laps, and 20.8% noil removed from 1,200-grain laps.



RELATIVE LENGTH OF COTTON FIBERS in comber stock can be determined by taking a reading at a point on the base line one-third of the distance from the left-hand terminus. In this instance, spinning capacity was increased 1/10 in. by combing.

If 20% of the cotton is less than ¾ in. long, it requires a magician to remove only 14% at the comb and still do a good job of combing.

There usually are present in the noil a few fibers equal in length to the longest fibers in the comber lap. With improved lap preparation, it is possible to keep long fibers to a minimum because hooked or nonparallel fibers are the chief cause of this condition. When a comber is operating efficiently, the average length of the noil should not exceed approximately 0.45 in.

The accompanying graph shows what changes take place when combing is introduced into the series of operations normally employed in spinning. One use of the graph is to determine the most effective staple length. If a reading is taken at one-third the base line, starting from the left, a value that represents the comparative spinning capacity of the sample is obtained. Readings from the graph show: noil 0.40 in., card sliver 0.97 in., comber lap 1.02 ins., and combed sliver 1.12 ins.

In this particular instance, the spinning capacity is increased by the equivalent of 1/10 in. Normally, combing is considered to add at least ⅛ in. to the spinning value of any cotton. The operations employed in lap preparation add somewhat to the staple length because of the drafting and straightening of the fibers.

The stock used in this test was carried through spinning, and the table

THE EFFECT OF COMBING ON EVENNESS

	Uster test	Carded	Combed
Sliver	Average	12.6%	17.8%
	Deviation	2.4	3.1
Finisher drawing	Average	16.6	13.2
	Deviation	3.2	2.5
Roving (1-hk.)	Average	22.0	19.2
	Deviation	4.3	3.0
Yarn (30s)	Average	98.0	67.0
	Deviation	18.3	12.3
Break factor		2,180	2,560

COMBED STOCK is more even than carded stock, and combed yarn has a higher break factor.

above shows the benefits of combing.

As the combing becomes more thorough, the average staple length increases while the neps in the combed sliver decrease in number.

Benefits and Costs

With the cost of manufacturing cotton goods in mind, it might be well to judge combing from the standpoint of benefits and costs.

Benefits:

1. Increased break factor, approximately 10%
2. Increased effective staple length, about 12%
3. Improved yarn appearance, one grade or more
4. More-even yarn
5. More luster
6. Higher spinning limit and finer yarn
7. Fewer ends down in spinning
8. Less twist in yarn
9. Higher drafting

Costs:

1. Direct labor: about 1¢ per lb. and maybe another cent for overhead
2. With 14% noil removed, material brings 2¢ per lb. if the noil can be sold at 60% of the raw-cotton price
3. Machine investment is approximately $250 for each pound per hour to be combed
4. Additional floor space is about 7 sq. ft. for each pound per hour

If combing will increase effective staple length by ⅛ in. and appearance by one grade, just what will that mean in value? Assume that Middling 1 1/32-in. cotton is priced at 39.3¢ per lb. At the spinning frame, this cotton becomes the equivalent of 1 3/32-in. Strict Middling worth 44.75¢ per lb., a difference of 5.45¢ per lb. The difference will more than pay for the increased labor cost and the loss caused by noil.

The waste in processes up to combing is increased as one lowers the starting grade, but this additional cost will not bridge the gap between 4¢ and 5.45¢.

The simple difference in the value of tare becomes quite an item if production is 400 lbs. per hr. Normally, 24 lbs. per bale are allowed for bagging and ties; and if the difference in cotton price is 5.45¢ per lb., this saving means an extra $1.30 per bale.

The premium paid for the better grades and staples will increase as time goes on, and combing will become increasingly important as a means of raising the spinnability of some of these poorer stocks to a level that will meet mill requirements.

How Half-Lap Needling Affects Comber Efficiency

• The theory of combing long-staple cotton is based on progressive decreases in half-lap needle spacing from front to rear. In the past, few manufacturers and reneedlers took the theory seriously. Here's proof that waste can be reduced substantially by careful attention to needling specifications.

By **P. E. SPERLING**, Coats & Clark, Inc.

About three years ago, Coats & Clark, Inc., initiated a research program to determine (1) the effect of changes in settings and timings on comber efficiency and (2) the advantages of new combers over combers in place when the latter are operating at maximum efficiency.

The greatest portion of time devoted to this project was spent on a study of the half-lap needle segment and needle specifications.

The theory of half-lap needling is based on progressive increases in the severity of the combing action from the time the needles of the first needle bar enter the beard until the last row of needles leaves the beard. The size, spacing, and length of the needles all affect the quality of the combed product.

Specifications Vary Greatly

Several comber manufacturers and reneedling companies were asked for suggestions as to the proper needling specifications for 1 1/32- to 1 1/2-in. cotton. A comparison of this information with the specifications used in our mills today and 25 years ago showed great variance.

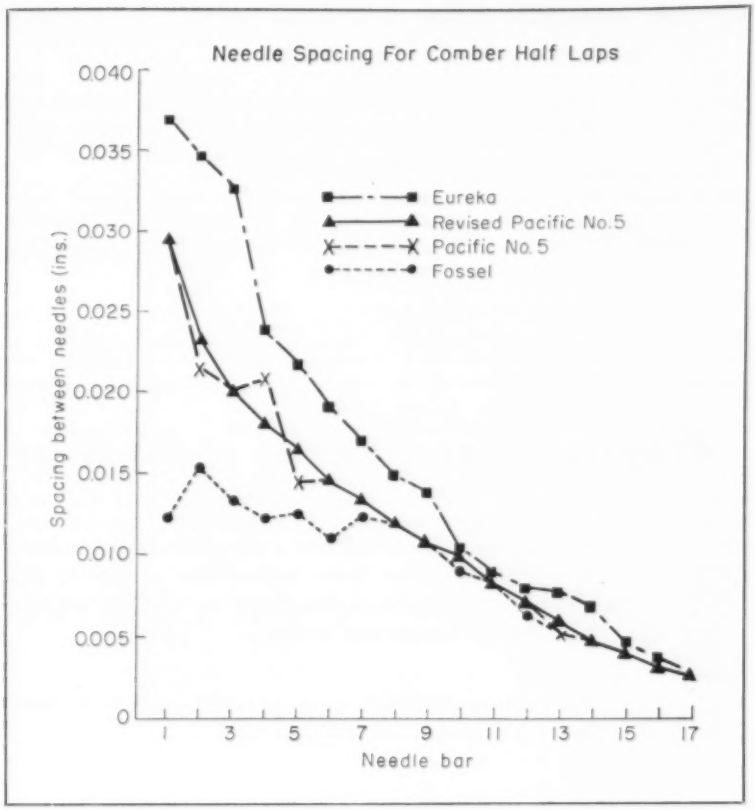
Conclusions based on this part of the study indicated that most mills and comber reneedlers pay little attention to the basic theoretical aspects of combing.

To illustrate the advantages of a theoretically good half-lap specification, we experimented with a group of Saco-Lowell combers equipped with the Fossel needling specifications. The needle spacing did not agree completely with the theory of decreasing space from the first to last row.

New Specification Cuts Waste

We asked Saco-Lowell Shops to explain the reasons for this condition,

NEEDLE SPACING for the Eureka and revised Pacific No. 5 half-lap specifications approach a straight-line curve.



and Saco-Lowell advised us that a new half-lap specification called Pacific No. 5 had been designed to agree more closely with the theory.

This specification was analyzed, after which we submitted a modification of the Pacific No. 5 specification to Saco-Lowell. Saco-Lowell in turn suggested some further changes. After running many tests on the revised Pacific No. 5, we consistently saved about 2% waste; so we standardized on this specification for all Saco-Lowell combers.

Saco-Lowell later came out with the Eureka specification that calls for flat needles to prevent bouncing action of the beard. This specification agrees with the theory of half-lap needling, but the first three rows of needles are more open than in previous specifications.

Needle spacing for the four systems is shown in the diagram.

Modified Micronaire Predicts Both Fineness and Maturity

• By increasing the cylinder content of the Micronaire with a special spacer and plotting the readings against Causticaire maturity indexes, fiber maturity can be determined while fineness is being measured.

By **WALTER E. CHAPMAN, Jr.,** Southwestern Cotton Ginning Research Laboratory

Tests have been made with the Micronaire to determine its possibilities for making rapid determinations of cotton-fiber maturity.

The principle is to increase the volume of the standard 50-grain sample over that used in the regular Micronaire tests for fineness. With the 1-in. cylinder, the experimental increase was 0.3927 cu. in. for a ½-in. lift of the plunger.

To obtain the ½-in. lift, a ½-in. spacer was made to insert between the top surface of the cylinder wall and lower surface of the plunger flange.

Readings Are Higher

Tests showed that readings of the Micronaire Upland-cotton curvilinear scale with the spacer were consistently higher than readings without the spacer. The differences between the readings were greater for mature cottons than for immature cottons.

When the differences between the readings with and without the spacer were plotted against the Causticaire maturity indexes, the correlation coefficient was found to be 0.90 with a straight regression line. Subsequent tests with extra-long-staple American-Egyptian cotton indicated similar trends in predicting maturity.

The ½-in. spacer proved satisfactory with most of the Southwestern cottons, but a few coarser cottons from other areas produced readings above the limit of the scale. To take care of this situation, a conversion table was developed.

Some of the coarser cottons grown in other areas produced readings above the limit of the scale with the ½-in. spacer; so a ¼-in. spacer was developed.

PLEASE TURN THE PAGE

The ¼-in. spacer restricted the use of the scale to a rather small range, and the resulting regression line was curvilinear.

To compromise the advantages and disadvantages of the ½-in. and ¼-in. spacers, a ⅜-in. spacer was tried. The ⅜-in. spacer provided readings well within the range of the scale, even with the coarser cottons, and gave a regression line only slightly curvilinear. The correlation coefficient was found to be 0.92.

Test data are being analyzed to determine the feasibility of predicting fiber maturity directly from readings with one of the spacers. If successful, this development will eliminate subtracting one Micronaire reading from the other and will provide a method to predict both maturity and fineness almost as quickly as fineness alone is now predicted. Testing will continue until results are definite.

Progress Report on Use of the Nepotometer in Testing

• Nepping tendencies vary among different cottons and are not fully predictable even when the common fiber properties are known. Here's how the Nepotometer helps determine some of the more-obscure factors that are not always recognized easily.

By A. R. MARKEZICH, J. D. TALLANT, and R. K. WORNER
Southern Regional Research Laboratory

The Nepotometer, first described before the Cotton Research Clinic in 1953, is in some respects a miniature card designed to simulate carding action on laboratory samples of cotton. Here is a progress report on some studies conducted with the Nepotometer since it was put into commercial production:

A study was undertaken by three different agencies on cottons ranging in Micronaire readings from 3.3 to 5.2 and with corresponding upper-half-mean lengths ranging from 1.44 to 0.94 ins. The purpose was to determine the effect of specimen weight on the web weight and on the number of neps per grain. Specimen weights ranged from 17.5 to 27.5 grains inclusive.

Conclusions Are Reached

Results of the experiments showed that a standard-weight specimen does not necessarily produce a standard-weight web, and there may be considerable differences among different cottons. For each of eight cottons tested, the web weight and the log of neps per grain increased with an increase in specimen weight between 17.5 and 27.5 grains inclusive. The increases were linear with no indication of curvilinearity.

Since evaluations are based on comparison of the webs with appearance

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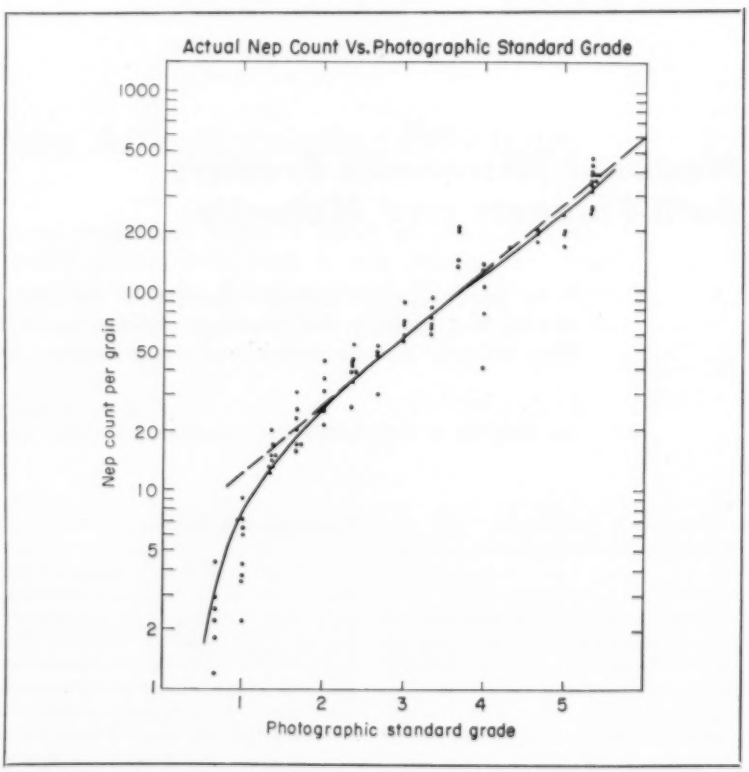

NEPPINESS STANDARDS that follow a regular progression can be obtained from the photographic grades by adding another grade between Grades 1 and 2. Above Grade 1, the approximate regression is: $\text{Log}_{10}N = 0.34G + 0.74$; where N = neps per grain and G = grade.

Pneumatic Instrument Measures Length of Cotton Fiber

• The "pneumatic galvanometer," described last year at the Cotton Research Clinic, has been built into an instrument designed to measure the length of fibers. Compared with Fibrograph measurements, the pneumatic measurements show a fair degree of accuracy.

By **HUGH M. BROWN,** Research Consultant

A pneumatic instrument for measuring the mean and upper-half-mean fiber lengths is under development. Air is drawn through a cotton-fiber beard placed over a narrow slit to form the fourth arm of a pneumatic Wheatstone bridge. The unbalanced deflection of the "pneumatic galvanometer" across the bridge varies with the number of fibers placed over it to enable measurement of the mean value from curves automatically drawn by the device.

Seventeen cottons were tested on the pneumatic instrument, and the results were compared with Fibrograph measurements. The pneumatic mean-length values were slightly on the low side. Possibly part of the reason is that the air pressure in this work, not being perfectly controlled, falls 0.25 to 0.5 in. in 12 ins. as the beard is moved off the slit. Keeping the pressure constant should give slightly higher values for the mean length but would have relatively little effect on the upper-half-mean values.

The apparatus is not very critical as to beard thickness. None of the samples was weighed; and for half of the readings different beard thicknesses were purposely used.

The method does not require any certain air pressure as long as pressure remains fairly constant during the individual tests. The pressure of the cover on the beard is not critical, but probably better results could be obtained by greater control.

How To Evaluate Cotton-Yarn Quality

• A knowledge of the quality level of yarn does not improve it unless management takes constructive action. Here's how Botany Cottons' quality-control laboratory handles testing and makes its reports to management.

By **JAMES M. HEAVNER,** Botany Cottons

To spin better yarn, quality must be broken down into its components and interpreted so that management can direct its efforts where they are needed.

At Botany we break down quality into three basic factors: size variation, short-term variation, and imperfections in yarn. Random testing brings out the true distribution pattern of quality.

In reporting to management, we make our conclusions and recommendations brief, accurate, and to the point. This action saves management time and assures whole-hearted cooperation of line supervisors.

Instruments Are on One Circuit

Our basic instruments for testing include an electronic capacity tester and integrator for short-term variation. In the same circuit is an imperfection counter and a Spectrograph. This setup determines variations, imperfections, and machine deficiencies in one operation.

Small imperfections are electronically counted; large imperfections, such as gouts, slubs, and piecings, are checked visually in 1,000-yd. lengths.

Long-term variation is a question of proper blending, low picker-lap variation, doublings, machine standardization, and operating methods.

Short-term variation is caused by many factors, such as roll eccentricity, roll covers, weights, apron thickness, cradle openings, settings, and draft distribution. Optimum fiber control gets more and more critical with higher drafts and speeds.

A summary of a report on 28s combed knitting yarn made from identical raw material is shown in the accompanying table. These figures represent extreme conditions but serve to illustrate what can happen to yarn made from the same cotton.

COMPARISON OF 28s YARN SPUN FROM THE SAME COTTON

	Poor	Good
Standard number	28.00	28.00
Actual number	28.33	28.08
Actual break (lbs.)	76.15	78.78
Break factor	2,157	2,212
Size variation (%)	25.32	11.51
Short-term variation (%)	99.0	72.0
Imperfections per 1,000 yds.		
Drum	0.4	0.2
Electronic	224	91

YARN made from identical cottons can vary greatly if one or more quality factors fails to come up to standard.

CONTINUED ON PAGE 140

There's No Substitute For Experience

An "old pro" is respected in any field of endeavor. Know-how is an acquired asset—not a production-line product.

Not all Keever sales-service men are old in years, but each has the technical training so necessary to understand your plant operations. And the combined contact experience of the group is more than 120 years.

For your benefit, general and specific mill problems are discussed in staff meetings which often include engineers and specialists from our laboratory and plant.

The success secret of Keever quality products is based on service.

Charles C. Switzer, Vice President
TEXTILE SALES DIVISION
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the weaver's friend

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Portland Woolen Mills Switches to CENTRALIZED LUBRICATION

Automatic centralized lubrication of rings on wool spinning frames has replaced hand oiling in this Western mill. Some of the benefits include—

- **Longer ring life**
- **Less oil consumption**
- **Better yarns**

By C. F. WAGNER, Engineer, Portland Woolen Mills

Portland Woolen Mills, Inc., Portland, Ore., is cutting oil consumption to one-sixth of former requirements with an automatic centralized lubrication system on spinning frames. We are also making better yarns because there are fewer yarn breaks, and the yarns are cleaner. Ring life has been doubled because the rings get better lubrication.

There are 30 Model E spinning frames in place at Portland, and the system is being installed on each frame as the old rings are replaced. Here's what we have done:

Our frames are 6-in. gauge with 5-in. rings; and when the rings are changed, we install a 0.003-in. valve behind each ring. This valve feeds oil to the rings at predetermined intervals, which are controlled by a timer.

We don't use any wicks. The valves feed oil directly to the ring. Elimination of the wicks has improved lubrication because wicks fill with dirt and lose their capillary action.

Oil is carried to the rings from a T-piece along a ⅜-in. pipe that runs behind each ring rail. We find that nylon pipe is suitable for this job. The T-piece is fastened at the center of each frame.

Nylon Pipe Is Used

Oil is carried to the T-piece from the control unit through a ¼-in.-dia. nylon pipe. The control unit, which determines the amount of oil we use on the rings, contains a solenoid, timer, and strainer. We adjust the timer to operate in cycles up to 20 mins. according to the traveler weights and speeds.

Our travelers weigh from 2 to 50 grains, and the spindle speeds are 2,000 to 5,000 rpm. The package weights are about 1 lb., and yarn is twisted with 4.5 to 11.5 tpi.

Each frame is equipped with its own controls; so we can vary the oiling cycle on each frame. Our main oil line is a 1-in. pipe we've extended through the spinning room over the spinning frames.

We use a ¼-in. drop pipe over each frame to feed the oil to the control units. Oil is pumped along the 1-in. pipe from an air-operated pump. We use an 11-to-1 ratio, 60-psi.-ga. pump to

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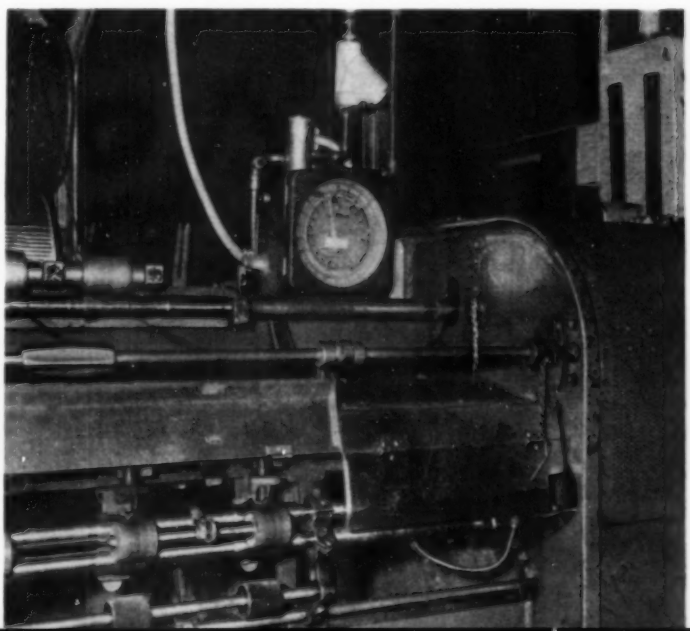
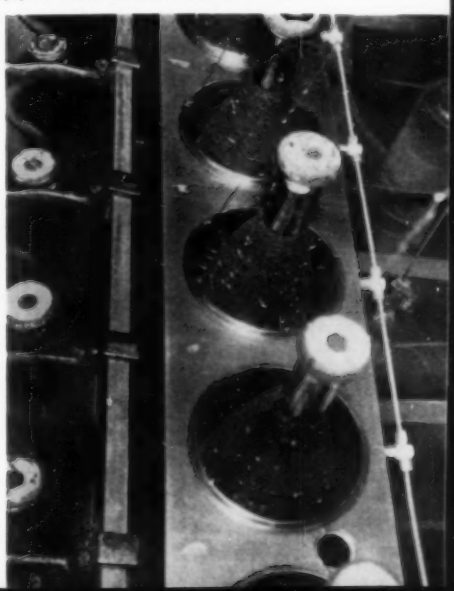
CONTROL UNIT on each frame is adjusted according to the traveler size and the spindle speed. Lubricating cycles are timed from 1 to 20 mins.



RINGS on spinning frame are lubricated by a valve behind each ring. Oil is fed from the control unit by a ¼-in. nylon pipe. There are no wicks.



NEW SACO-LOWELL ANTI-FRICTION COILER HEAD

REQUIRES MINIMUM MAINTENANCE AND LUBRICATION— NO OTHER COILER OFFERS THESE ADVANCED DESIGN FEATURES

All external lubrication of coiler head is eliminated, thus preventing silver soilage by oil or grease. The coiler gear is supported by three non-metallic tires, mounted on roller assemblies, which contain anti-friction bearings, grease packed for life. Non-metallic tires support the coiler gear which is driven by a nylon pinion requiring no gear tooth lubrication.

Note that the tube does not touch the inside of the coiler gear. This intentional clearance of 1/16" prevents snagging of fibers or "tagging" experienced with most other makes of coilers. The inside surface of the tube, made from special "Electrunite" steel, is smooth as glass and free from all scratches and defects that snag fibers. A well-rounded and polished hole through the coiler gear is directly opposite the bottom end of the tube.

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How Effective Are Your Training Methods?

• With the pressure for production reduced and the labor market eased, you have an opportunity now to be more selective in hiring, to examine the training job you are doing, and to improve your methods

By M. A. CROSS, Director of Industrial Relations, Dan River Mills, Inc.

Now is a good time to look at the kind of job we are doing in training employees and to improve our techniques where any weaknesses might show up.

When plants are humming six days a week, when first emphasis is on meeting production schedules, and when experienced and skilled labor is in short supply, there may be a tendency to let down on the training job. Now, with the market slow for most textiles and with the economy generally at a reduced level, with cost the paramount factor and with the labor market eased, it is important to examine closely whether or not we are doing the kind of training job that will produce the best results.

Select Employees Carefully

Training begins with selection. A little more time spent with applicants in sizing up their interests, their aptitudes, their character, and their trainabilty means you are more likely to pick people who have the potential backed up by your training, to become proficient employees.

Nation's Business, monthly magazine of the U. S. Chamber of Commerce, carries an article in the March issue suggesting key factors management should consider in making ready for the return in business that is sure to come, whatever the specific date. One of the points: "A recession presents an opportunity to obtain the best possible talent." Corollary to this point is that "the time to get the best men does not coincide with the time of maximum employment."

Now may be an excellent time for you to be selective in the hiring of applicants. So give yourself a boost on the training job by doing the best job you can on selection.

A second point: Training of employees is a primary obligation of first-line supervisors. In theory, most supervisors would subscribe to this idea. In practice, the actual training sometimes gets put aside until all the other responsibilities of the job have received attention, with the result that good intention becomes little more than just that.

The Supervisor's Responsibility in Training

Training an employee to do his job properly, efficiently, and safely and fitting him into the pattern of departmental operations is the responsibility of supervisors. No matter what supplementary training may be available off the job, in special vocational schools or elsewhere, the supervisor cannot escape the fact that training the employee to perform his present assignment is the job of the supervisor.

How broad is this responsibility of training? Or put another way, in what particular things should a supervisor train an employee? In my opinion, there are at least three areas that the supervisor can generally cover better than any other representative of management.

First, he should train the employee in the specific duties of the particular job he is to perform. This training involves breaking the job down into its component parts, showing and telling the employee how to do each part of the job, explaining why it is done in a certain way, and making sure with frequent check-backs that the employee understands his instructions.

It also involves informing the employee clearly of the quality standards he is expected to meet. Helpful to the employee is gaining an understanding of how his work ties in with that of other workers and how what he does wrong may cause difficulty in succeeding operations.

Second, the supervisor should train the employee in how to do the job safely. This fact is obvious, perhaps; but remember that the new employee, or the old employee new to that particular assignment, may not immediately recognize how injuries may result from unsafe methods.

Certainly it is not worth taking a chance. Training in how to do the job safely should be built right into the process of teaching an employee the specific duties of his assignment.

CONTINUED ON PAGE 137

THIS IS NO. 128 OF A SERIES ON

GETTING THE MOST FROM WINDING

Information about winding designed to show improvements in winding equipment and new ideas in the winding operation

HOW TO MEASURE YARN SPEED ON A DRUM WINDER

Although a drum winder is looked on as a constant-yarn-speed machine, actually this is not so. There is a slight amount of slippage between the driving drum and the surface of the package. This slippage is greater when the package is small than when it is at maximum diameter. It is greater when winding cones than when winding parallel tubes. Another cause of slippage is the periodic slowing down of traverse rolls. From time to time these rolls are decelerated purposely, on the Roto-Coner®, to prevent ribbon wind.

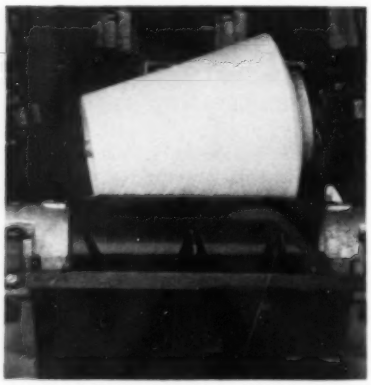


Fig. 1. Actual yarn take-up speed can be tested by winding onto a half-full cone.

Even though it isn't strictly correct to call a drum winder a constant-yarn-speed machine, the actual variation in yarn take-up speed is so small that it makes very little difference in production figures. For calculating production, however, the average yarn speed from start to finish is used to compensate for the variations we have just mentioned.

The constants shown in Table 1 may be used to determine the actual average yarn take-up speed on the Roto-Coner. As the table shows, the constants vary for the different type of packages. When the constant for a particular type of package is divided into the revolutions of the traverse rolls, per minute, it gives the average yarn take-up speed for a 5 to 8 inch diameter package. The constant takes into account the slippage from start to finish of the package.

When determining the speed of the traverse rolls for the purpose of making this calculation, the full speed of the rolls between power interruptions should be used. A tachometer reading should be taken to calculate the formula accurately.

While the table is accurate for the 3 inch diameter traverse rolls on the Roto-Coner Winder, it may not be accurate on other drum winders.

The yarn take-up speeds shown in the Roto-Coner Parts Catalog and Operating Manual were obtained through the use of this formula. The actual yarn take-up speed can be tested by taking a half-full cone on the winder, and without tying the end, winding onto it for two minutes. Reeling the yarn off to the break and computing the yards per minute will give the actual average take-up speed.

TABLE 1

Average Yarn-Speed Constant for Roto-Coner

Package	Constant
9°36′ or 9°15′ Cone	4.2
5°57′ or 3°30′ Cone	4.0
Parallel Tube	3.9

$$\frac{\text{RPM of Drum}}{\text{Constant}} = \text{Average Yards per Minute throughout winding of package 5″ to 8″ diameter}$$

May 1958 — 23.7.12

Winding and Twisting Machinery for Natural and Synthetic Yarns

UNIVERSAL WINDING COMPANY

Providence • Boston • Philadelphia • Charlotte • Atlanta • Los Angeles • Montreal, Hamilton, Canada
Manchester, England • Paris, France • Basle Switzerland

LEESONA

For more data, write this page number on Reader-Service card.

Loomfixer Doe, John Q. Section No. 3 Shift 1st Date 3/6/58 Total

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	
When fixed mark X	X	X	X	X	X	X	X	X	X	X	X															11
1-Jerk-backs or stringy sel.	3									3																
2-Breaking filling				100				100																		
3-Bristles out																										
4-Transferring wrong																										
5-Slamming off	19																									
6-Shuttles bouncing																										
7-Skinning quills			57																							
8-Thin places					4		41			41																
9-Let-off																										
10-Take-up																										
11-Pulled-in selvage																										
12-Uneven cloth (shady)																										
13-Stopping off	131																									
14-Harness set wrong																										
15-Overshots or harness skips							76																			
16-Knocking out filling																										
17-Stop motion												16														
18-Ribb or harness hook																										
19-New warp (checked)											2															
20-																										

Loomfixer's Work Sheet Helps Get Looms Fixed

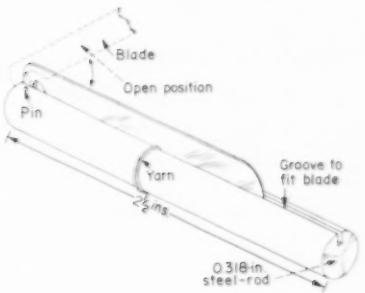
We had some weavers' complaints that loomfixers were not repairing looms in the order in which they were flagged. Also, we had reports that some looms were flagged several times for the same fault before they were fixed.

To remedy the situation, we had some work sheets printed and we put a new sheet on the loomfixer's board at the beginning of each shift. Any jobs remaining incompleted are transferred to the new sheet.

The work sheet contains a list of loom faults and a number of squares in which loom numbers can be written. The weaver puts the loom number in a square opposite the listed fault and in the next column to the right following the last number listed.

The loomfixer goes to the looms in the order listed on the work sheet; and when the loom is fixed, he marks an X in the space provided at the top of the column.

The work sheets are filed in the overseer's office. The supervisors can check them and learn how the different looms are flagged and fixed. Use of the work sheets has resulted in better cooperation between weavers and loomfixers. (K-3621)



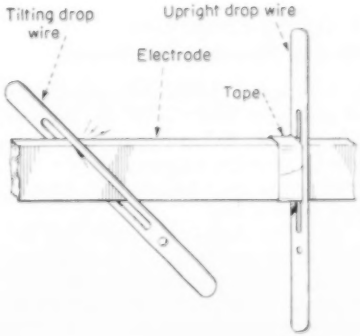
Here's a Quick Way To Find Yarn Number or Denier

The simple measuring and cutting instrument shown here makes it easy to determine yarn numbers and deniers, especially when only a small quantity of yarn is available for analysis.

Cut a groove ¼ in. wide in a piece of steel rod exactly 0.318 in. in diameter, or 1 in. in circumference. The rod should be about 2½ ins. long to accommodate the 1¼-in. cutting blade that fits into the groove in the same way a pocket-knife blade slips into the knife handle.

To use the instrument, raise the blade and wrap a strand of yarn around the rod. Push the blade into the groove so that it cuts the yarn smoothly.

Weigh the 1-in. sample on a milligram scale. Then divide the milligram weight into 15 to find the yarn number; multiply the weight by 354.33 to determine denier. (K-3798) *Norman N. Nolen, Greenville, S. C.*



Piece of Tape on Electrode Holds Drop Wires Upright

Drop wires will often tilt on the electrode and cause the loom to stop. This tilting is especially bad at the selvage or when a drop wire is widely separated from the others.

We have found that a piece of tape stuck to both sides of the electrode in a position to hold the drop wire upright does not interfere with the normal operation of the drop wire but does keep it from tilting. (K-3640) *Henryk Eiger, Ruti, Switzerland*

How To Prolong Life Of Cleaning Brushes

Some mills throw away comber dusters and other cleaning brushes after they become matted and stringy.

We prolong the life of our brushes by soaking them in Varsol for about an hour and then blowing them out with strong compressed air.

Cleaning is usually done on Friday afternoon or Saturday so that the brushes can dry until Monday. (K-3799) *J. R. Wikle, Sr., Charlotte, N. C.*

March Prize-Winning Kink

The best Kink published in the March issue of TEXTILE WORLD, according to our reader-judges, was:

"Tension on Swing Folds Cloth Without Creases"

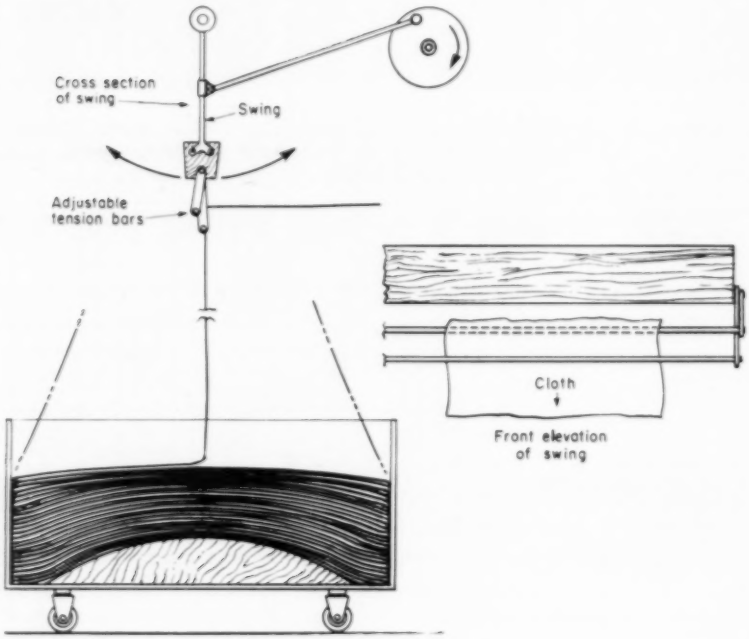
By A. Droulias, Piraeus, Greece

The winner is being sent a check for $25 with the compliments of TEXTILE WORLD

The prize-winning Kink is reprinted at the right.

Each month TEXTILE WORLD awards $25 to the submitter of the Kink judged by a panel of over 300 mill men as the best for that particular month. A new batch of Kinks appears each month, and a new group of readers acts as judges each month.

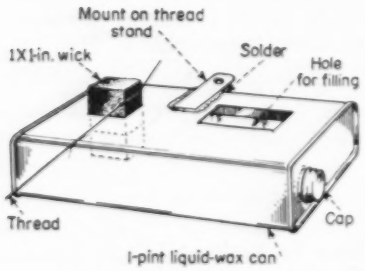
If you are asked to judge one of these days, be sure to help select the best Kink by sending back your answers in time for final tabulation. Closing date for judging is the last day of the month in which the Kink appears.



Tension on Swing Folds Cloth Without Creases

We eliminated uneven folding and creased goods in box trucks by adding a variable-tension device on the swing and making the truck bottoms convex as shown.

The goods lie perfectly in a truck modified in this way, and the slight tension provided by the adjustable bars eliminates jerky movement as the swing reverses its direction. (K-3780) *A. Droulias, Restina Bros. Mills, Piraeus, Greece*



Thread Lubricator Solves Sewing Problem

Controlled lubrication of the top thread is an important factor when man-made-fiber and rubber-backed fabrics are sewed. To overcome lubrication problems, we developed a trouble-free lubricator that doesn't clog valves and gives even lubrication.

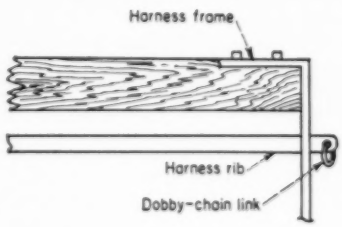
Here's how it is made:

Cut two openings in the flat side of a pint-size liquid-wax can. Make one opening 1 in. square to accommodate a felt pad of that size but about ½ in. higher than the depth of the can. Make the second opening 2x1 ins. for filling purposes.

Solder a mounting bracket on the top back side of the can and mount the can on the top front of the thread stand so that the thread passes along the right side of the felt on its way to the machine.

The thread picks up lubricant as it passes the saturated wick. The amount of lubrication is controlled by rotating the entire thread stand to increase or decrease the amount of the wick surface that touches the thread.

Because of the short depth of the can in relation to its total capacity, the can requires few fillings and the wick remains evenly saturated regardless of the amount of lubricant in the can. (K-3771) *A. Taraborelli, Providence, R. I.*



A Dobby-Chain Link Makes Harness-Rib Repair

A spring clip attached to each end of a harness frame holds the harness rib in place. When one of these clips breaks, as often happens, the rib will work out of the frame and the heddles will be damaged.

A dobby-chain link slipped into the hole in the end of the rib and clamped securely will prevent the rib from slipping out of place. (K-3384) *H. E. Wenrich, Berwick, Pa.*

*REG. U. S. PAT. OFF. †DU PONT POLYESTER FIBER. ΦCELANESE TRIACETATE FIBER

New color appeal for prestige synthetics!

AMACEL*... AMACRON*... LENRA* dyes

Three fine selected dye groups for uniform dyeing and printing of synthetic fabrics. AMACEL Dyes for nylon and acetate. AMACRON Dyes for Dacron†. LENRA Dyes for Arnel® triacetate. Each designed to give maximum fastness to light, washing and textile processing. Each offered in a wide range of consumer-pleasing shades. For technical literature and working samples, write or call your Koppers Dyestuff man at our nearest branch.

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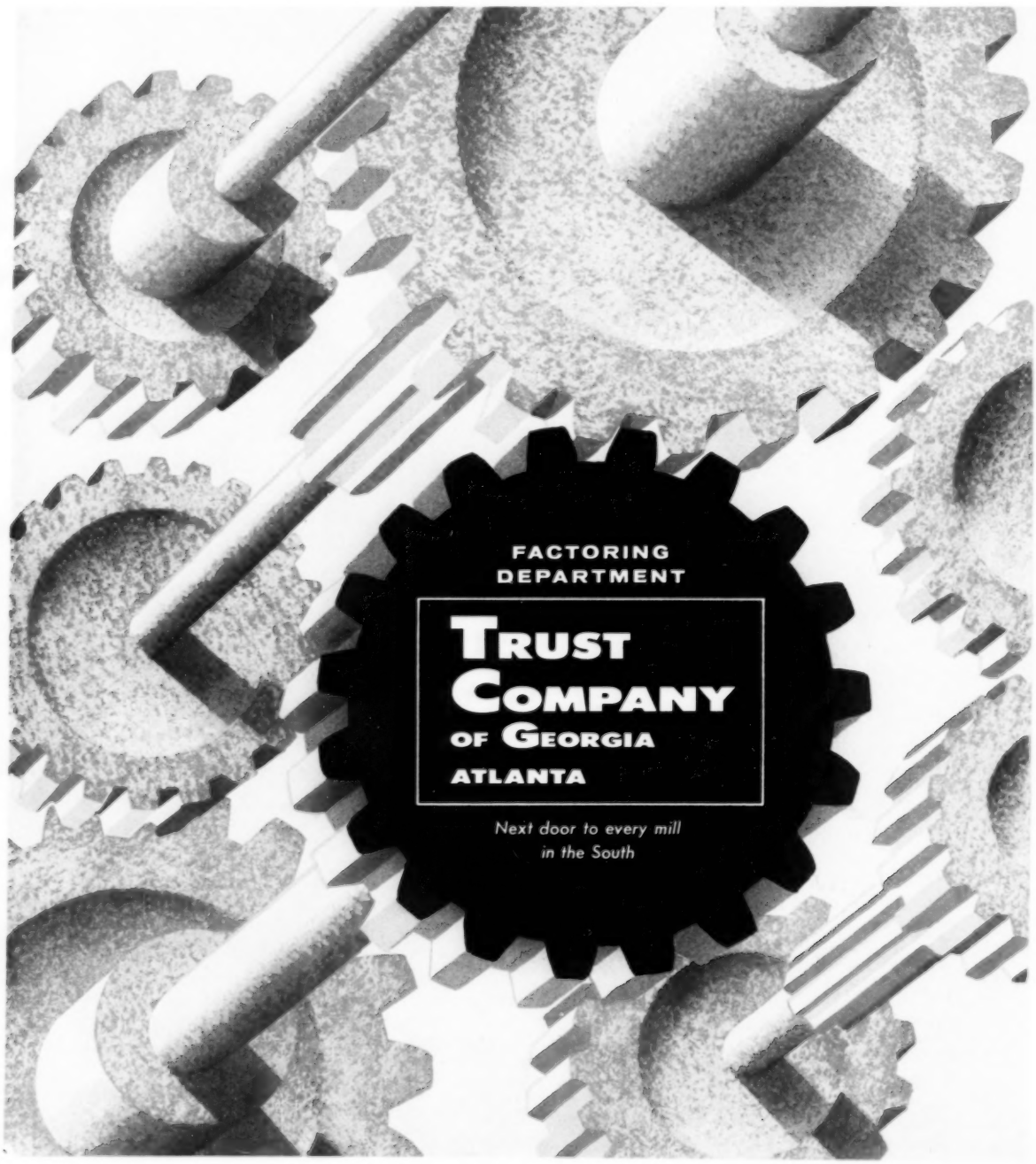
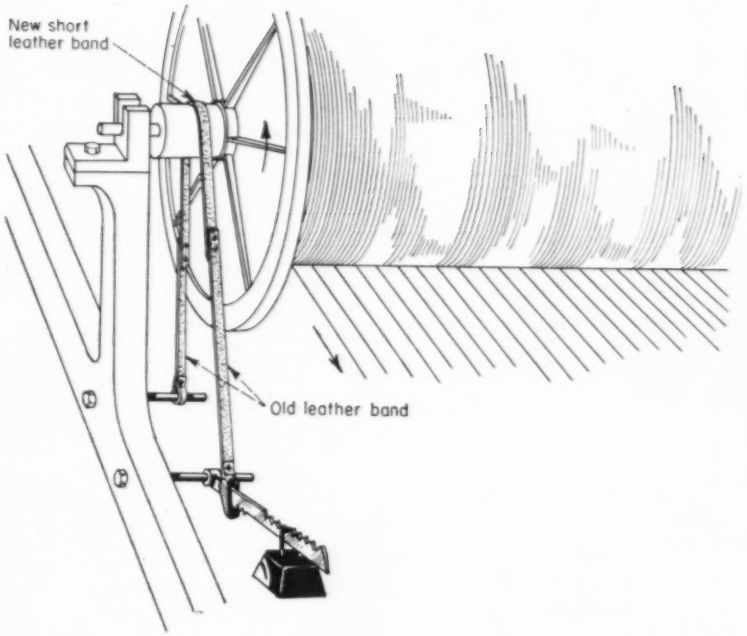
SOUTHERN INDUSTRIAL GROWTH

. . . has made tremendous contributions toward Dixie's surging economy! Since 1939, more than 22,000 industrial plants have been built in the South . . . and teamed with existing Southern industry, the value of goods produced has increased from $11 billion to over $62 billion. • Today, the South's share of the nation's industrial activity is surprisingly large. For example, the South now produces 80% of all cotton textiles, 36% of the nation's total in the chemical field, 32% of all lumber and 25% of all processed food. Also the area produces 56% of the nation's petroleum and minerals and 32% of all agricultural products. • As the only bank in the South with a **FACTORING DEPARTMENT** the Trust Company of Georgia has been privileged to serve as a **FACTOR** for numerous Southern firms. If your operation requires this specialized service, the Trust Company will welcome the opportunity to work with you and your bank in Dixie's "Forward March of Progress."

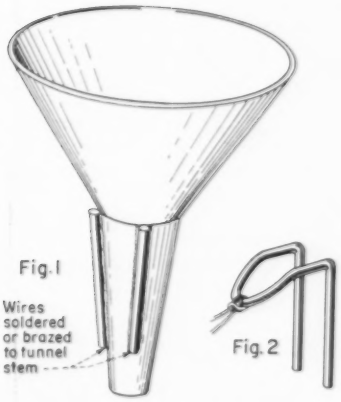




We Use Old Leather on Beam Brake Bands

On our slasher creels, we use leather straps to brake the section beams. This leather wears out where it contacts the hub of the beam. Replacement of the entire strap is expensive.

We have reduced the cost by using old leather at each end of the strap and piecing in new leather at the contact point. (K-3716) *Hokao, Fukaya, Fukui-ken, Japan*



Two More Ways To Speed Funnel Delivery

Here are two more ways to speed up the pouring of materials through funnels:

Solder heavy wire to the outside of a metal funnel stem as shown in Fig. 1. The distance should be two-thirds the diameter of the funnel stem to get a well-balanced job.

Polyethylene or similar plastic funnels can be vented by bending a wire as shown in Fig. 2. The wire should be tied to the funnel so that it will be available when wanted. (K-3667) *A. Sharrock, E. Wigan, Lancashire, England*

$500 for Best Kink in 1958 - - - $25 for Best Kink Each Month

Plus $5 to $10 for Every Kink Accepted

What Is a Kink?

Any idea that will

- Cut costs
- Improve quality
- Reduce work
- Increase production
- Make work easier

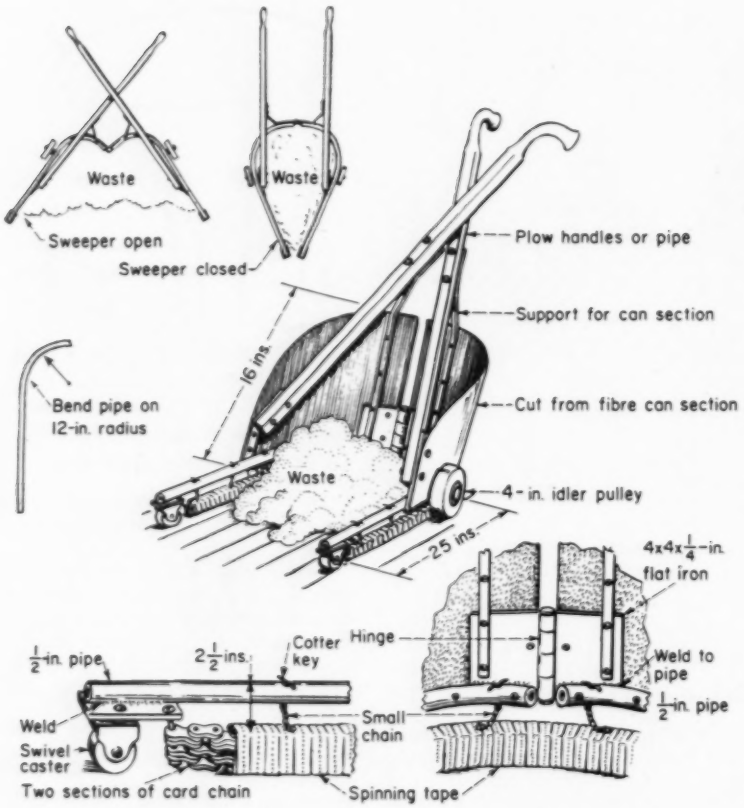
The idea may be one for improving machines, some attachment for a machine, a short-cut way of doing something, a labor-saving device—any idea at all that helps a mill man run his job better or easier.

Send in your Kink now. There is always a contest going on.

RULES OF CONTEST

1. No limit to number of entries.
2. New $25 prize contest every month, $500 prize contest for the year. Monthly contest confined to Kinks published that month, yearly to those published in calendar year 1958.
3. All Kinks paid for on acceptance; extra payment for photographs. Drawings need not be finished (clear detailed pencil sketches will do).
4. Previously published material not eligible for prizes.
5. Unless you advise to contrary, we assume we may sign your name to Kink when published.
6. Prize winners will be selected by readers, a different group each time. At least 300 will be asked to select preferred Kinks in each issue. Their votes will select the best Kinks, and their decision will be final. In cases of ties, duplicate prizes will be awarded.

Send Kinks to:
KINKS CONTEST, TEXTILE WORLD
201 E. Coffee St., Greenville, S. C.



Mill-Made Sweeper Makes Cleaning 50% Faster

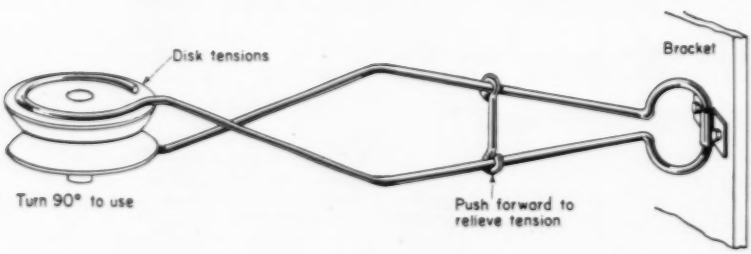
The accompanying diagrams show how to make a floor sweeper that is 50% more efficient than the usual broom-type sweeper used in most mills. The waste container holds eight times as much waste as the ordinary sweeper. Broken travelers and other hard-to-reach particles are picked up as easily as cotton waste.

The sweeping pad, made of two sections of card chain, is heavy enough to maintain constant contact with the floor and also is flexible because of the small anchor chains.

The card chains, wrapped with spinning tape, closely follow uneven floor contours and rough surfaces.

Hinged construction permits the operator to adjust the sweeper to the width of the alley. Very wide swaths can be made in open spaces.

Any mechanic can build the sweeper from material found around the mill with the exception of the plow handles. Pipe can be substituted for the handles if desired. (K-3809) *A. J. Redmond, Parkdale Mills, Inc., Gastonia, N. C.*



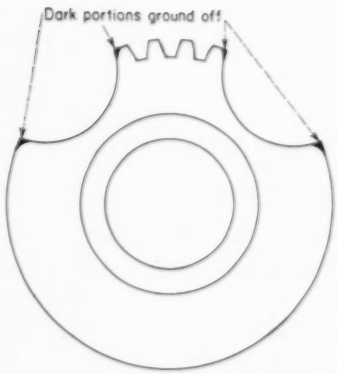
Use Spring Jaws To Improve Tension

The normal disk-type tension used on knitting machines is dependent on spiral springs and nuts to control the correct tension. The springs slip or get weak or the nuts get loose, and the tension control is lost. Here's a better way to keep tension on yarn more constant:

Remove the disks from the screw, and grip them together with a stiff spring wire bent to the shape shown in the sketch. If the spring in the wire is strong enough, you'll get all the tension you'll want.

To reduce the tension to your requirements, bend a band of metal around the wire. If less tension is required, simply move the band forward; but be careful not to remove all the tension.

Curve the ends of the wire that form the jaws so that they cover the whole surface of the disks. (K-3404) *H. J. Haas, Martinsburg, W. Va.*



Rounded Corners Stop Gear-Tooth Breakage

On our 4x1 box looms, we had a lot of broken teeth in the box changing gears. A slight modification of the teeth eliminated the trouble.

We rounded the corners as shown in the sketch, and now the gears mesh without trouble. (K-3707)

For an "Ease of Care" Finish On Cotton Knit Goods

STANSET

IS FAR SUPERIOR

Cotton fabrics finished with STANSET have superior dimensional stability — they retain their smooth appearance and shape for greater lengths of time despite repeated launderings. STANSET also speeds up drying time.

STANSET imparts lasting shrink resistance and has no adverse affect on light fastness. It will not affect your whites and it has superior non-yellowing characteristics. You will find low chlorine retention with these resins.

STANSET can make your finishing operations more profitable. If you would like to receive additional information about all the excellent characteristics of STANSET—just write us today. No obligation, of course.

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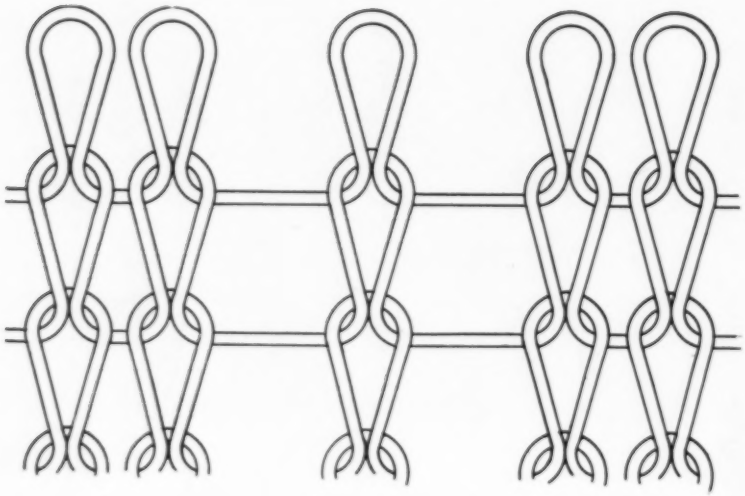


Here's an Easy Way To Count Stitches

When fabrics are made on fine-gauge knitting machines, the number of stitches per inch is often difficult to determine. The job can be made easier by removing two needles from the machine.

Remove one needle from its slot near the front of the machine if it is a stationary-cylinder machine. Leave the next needle in its slot, but remove the third needle from its slot to make a piece of fabric as shown in the sketch above.

Start the machine and knit about 3 ins. of fabric with the needles out of action. Replace the needles and knit the fabric below the take-up rolls.

The number of courses per inch can be counted easily on the wale between the drop stitches where the needles were removed. (K-3758) *Ben Singer, Raleigh, N. C.*

Homemade Chemical Formula Cleans Fluorescent Lamps

The lighting output of fluorescent lamps decreases rapidly from dirt and dust in our mill. But a monthly cleaning of reflectors and tubes with a special cleaning formula avoids the usual 20 to 25% loss of lighting intensity.

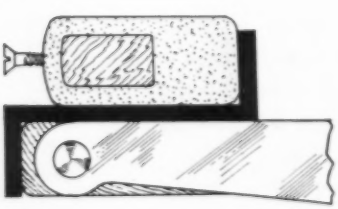
The formula is:

Glacial acetic acid (99%)	1 oz.
Methyl alcohol	2 oz.
Oxalic-acid crystals	1 oz.
Lactic-acid crystals	1 oz.
Butyl acetate	½ oz.
Amyl acetate	½ oz.
Glycerin	8 oz.

Mix the ingredients and allow the oxalic-acid crystals to dissolve. Then add the glycerin. This solution will be cloudy. Add butyl alcohol until the solution becomes clear.

Use the solution cold, and apply it to reflectors and tubes with a soft brush. Then wash the parts with a sponge, and rinse them with a clean sponge.

Finally, wipe the reflectors and tubes with a wad of lint wet with methylated spirit and dry them with a dry cloth. (K-3753) *W. C. Dutt, Coimbatore, Madras State, India*



Jig Holds Picker While Screw Is Inserted

The proper place for a picker screw is in its back, but it is hard to hold the stick and run the screw in tightly at the same time.

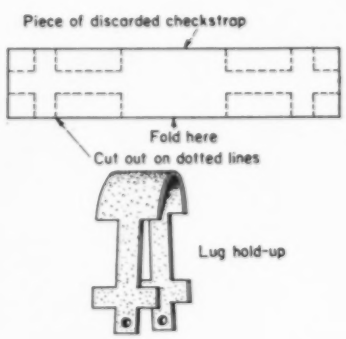
A piece of stiff metal can be bent to form a handy jig to hold the picker and stick while the screw is inserted. The length of the jig should be the same as the length of the picker. Make a 90° bend in one end to fit around the face of the picker and a bend in the other end to hook to the binder. (K-3792) *Grady Turner, Clinton, S. C.*

Tubes of Contrasting Color Improve Fluorescent Lights

Worker eyestrain can be prevented by using two fluorescent lamp tubes of contrasting color together. Our normal tubes are white; as these tubes burn out, we put in a yellow-tinted tube with each white tube. This arrangement gives a light much like sunlight. (K-3268) *Angel Chaufan, Trafalgar, Barcelona*

Worn-out Rubber Hose Makes Effective Truck Bumper

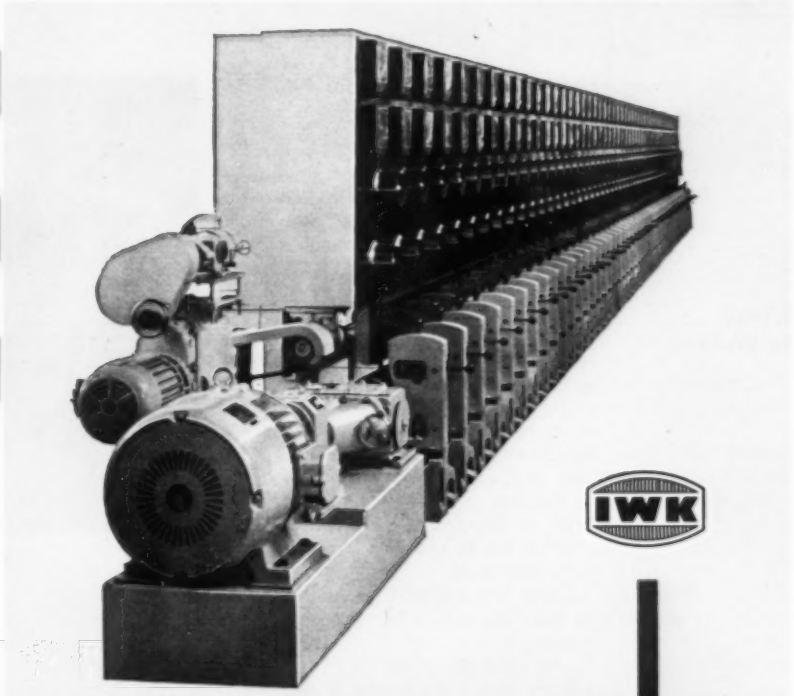
A length of old rubber hose tacked to the sides and ends of mill trucks makes an effective bumper. The bumper protects the truck when it is bumped into other objects and also protects doors and walls when the truck is brought into contact with them. (K-3589) *H. J. Haas, Martinsburg, W. Va.*



We Make Lug Holdups From Old Checkstraps

Serviceable lug holdups can be made from discarded checkstraps by cutting and folding as shown. This holdup will last longer than the regular type because it is made of the best hair-on leather and is of double thickness.

Some of these holdups are still giving good service on the box side of S-6 looms after six months' use. (K-2921) *Robt. Krantz, Berwick, Pa.*



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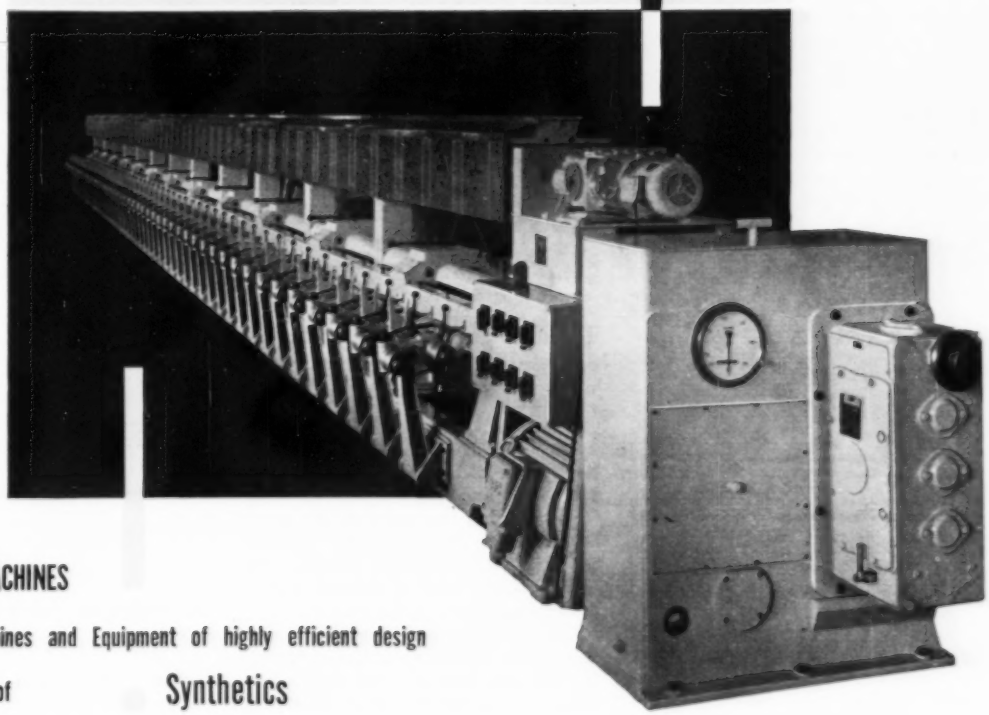

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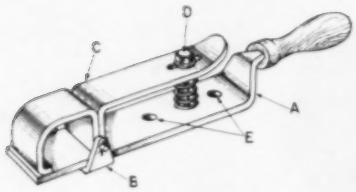


Spring-Activated Tool Holds Parts To Be Welded

A good tool to hold small parts to be welded, soldered, or tempered can be made from strap iron.

One piece of iron is heated and bent as shown at *A* in the accompanying sketch. One end is left square, and the other is ground to a point. A wooden handle is driven onto the point.

A second piece of iron is bent, as shown at projection *B* in the sketch, and is welded to piece *A*. Two holes are bored in the projection for a clevis pin.

Piece *C* in the sketch is also heated and bent so that it pivots from the clevis pin in projection *B*. One end of piece *C* is bent to form an anvil to hold work to be welded. The other end is ground to a smooth radius.

Piece *C* is slotted for capscrew *D*, which is screwed into piece *A*. A spring at capscrew *D* holds the anvil end of piece *C* firmly against piece *A*.

In addition to holding work in your hand for welding, etc., you can fasten the tool to a workbench with screws through holes *E*; or you can grip the tool in a vise. (K-3755) *Charles H. Willey, Penacook, N. H.*

How We Repair Rockershafts By Reversing the Ends

A number of rockershafts on our Draper looms were badly worn. Since the shafts wear near the ends and the center sections are undamaged, we salvaged them in this manner:

The rockershafts were removed from the looms and sawed in half. The ends were reversed, with the worn ends being placed in the middle. Held in a jig to hold them perfectly straight, the two halves were welded together to form a shaft that was as good as new. (K-3370)

Lease-Rod Stand at Slasher Has Light for Inspection

Many of our fabrics have warp stripes of several colors of solution-dyed yarn. Leasing these stripes at our slashers used to be a big problem. We've lessened the problem somewhat by installing four stands for the lease rods just back of the size box.

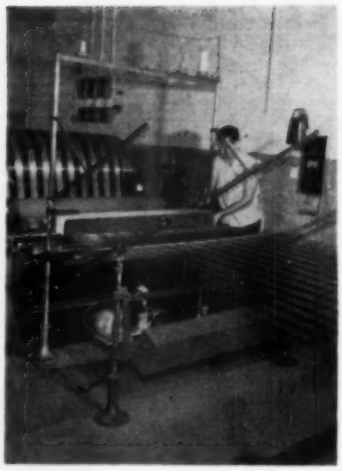
The stands have a base fastened to the concrete floor with bolts. Galvanized pipe 1½ ins. in diameter is inserted in each base.

Two of the pipes are high enough to reach to the warp position between the section-beam creel and the size box. A T-angle-iron arm is fastened to the top of each pipe so that the angle of the arm is adjustable. This arm has hooks spaced 3 ins. apart to hold lease rods.

Lease rods are held in these stands to lease the warp while the slasher is running.

The other two pipes are 7½ ft. high, and another T-angle arm is fastened to each pipe about 2 ft. above the warp at a 30° angle. As in the first stand, each arm has hooks to hold lease rods during leasing.

A piece of T-iron fastens the tops of the two longer pipes together. Spindles and porcelain thread guides are placed on tops of the T-iron to hold extra ends for ends left out in warping. Lease string is kept there, too.



For better light during leasing and also to help slasher tenders inspect the yarn as it is running, we mounted a fluorescent lighting fixture between the two lower stands. The light shines on the lease rods and warp at an angle that isn't in the tenders' eyes but shows the various colors of yarn clearly.

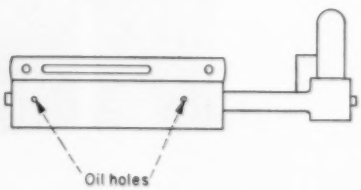
With this new setup, we have fewer mixed warp ends, straighter warps, and tenders lease warps faster. (K-3395) *Schwarzenbach Huber Co., Altoona, Pa.*

Re-edge Yarn-Grading Board For More-Even Winding

In making and using the yarn-grading-board winder recommended by Eugene F. Wallace, Southern Regional Research Laboratory [TEXTILE WORLD, March, '53, p. 111], we found that the edges of the paper or wooden boards soon became grooved. The threads would not space evenly, and a manual touch-up was necessary.

We overcame the trouble by discarding our paper boards and re-edging the wooden boards. The repair was made by slicing the ends from the boards and gluing on new pieces of hard wood. The grain is placed perpendicular to the yarn.

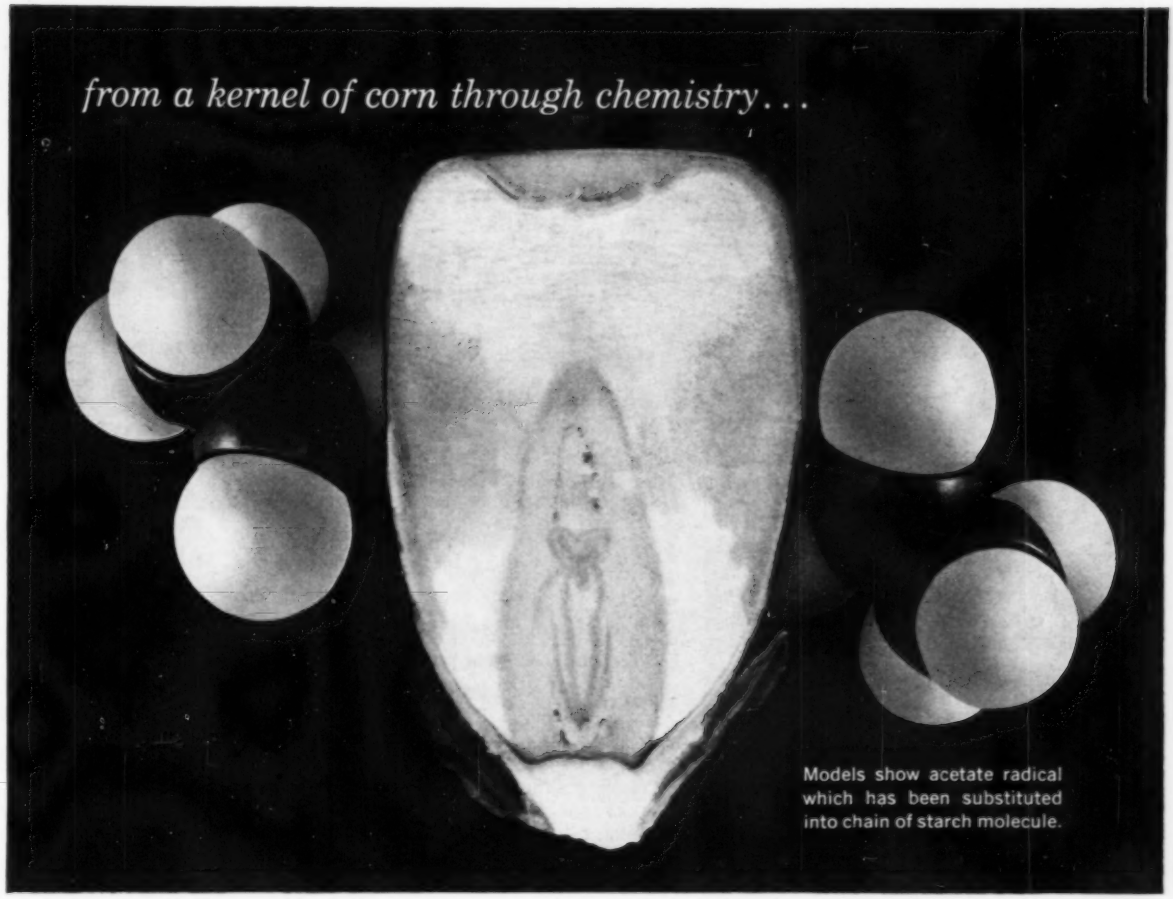
The modified boards last a great deal longer than the old ones, and the ends can be replaced when they begin to wear. We no longer have to straighten out the yarn with our hands. (K-3361) *Flora, China*



Oil Holes in Temple Case Prolong Life of the Bar

Many loom temples do not have oil holes in the case, and the bars wear out quickly unless the case is taken apart and lubricated frequently. Too much oil or grease in the case will spill over onto the temple and stain the cloth.

Two small holes, about 3/32 in. in diameter, in the top of the case will permit the bar to be oiled without getting oil on the cloth. (K-3475)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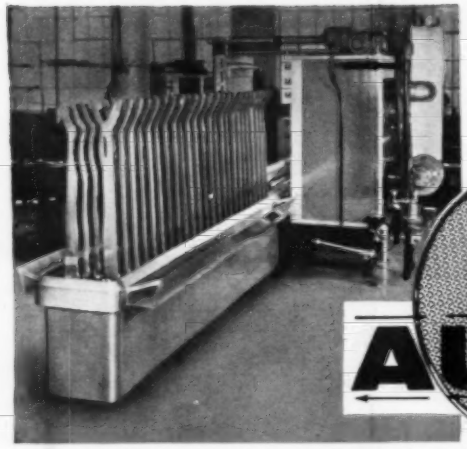

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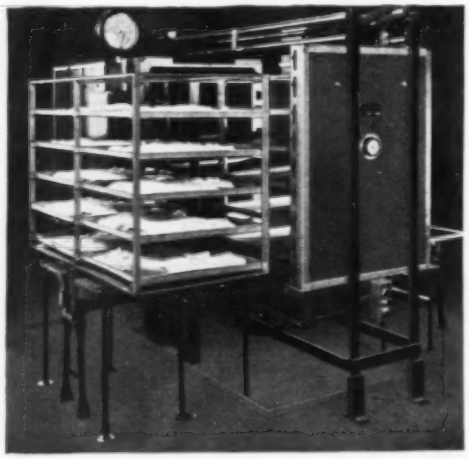

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Do you need help on a technical problem? TEXTILE WORLD is at your service in helping solve problems in yarn manufacturing, weaving, knitting, dyeing, finishing, and other textile operations. A large staff of mill men, consultant, and other experts are available for authoritative answers. Send your problem to the Editor, Questions and Answers, TEXTILE WORLD, 201 E. Coffee St., Greenville, S. C.

Gassing Speeds for Cotton Depend on Yarn Number

Technical Editor:

We are gassing cotton sewing thread, and we receive complaints that the yarn is broken in various places. What are the best speeds and conditions to run this yarn? (1371)

Coarser yarns need less speed than finer yarns for successful gassing. The practical speeds should in fact be in close relationship to the yarn surfaces.

The surface-speed table shown here is compiled from this formula:

$$\text{Gassing speed} = M(\sqrt{1 + 8N} - 1) \text{ yds. per min.}$$

Where N = equivalent yarn number
M = multiplier related to the heat capacity of the burner

For Butane-gas burners with 255 holes or 12 holes per inch and hole diameters of 0.043 in., the multiplier is 35.

For instance, if a 36/3 yarn is to be gassed on a burner of these specifications, the practical yarn speed would be–

$$35 \times (\sqrt{1+8\times12} - 1) \text{ yds. per min.} = 310 \text{ yds. per min.}$$

If speed changing is limited, some yarns nearest to one speed can be grouped together, while another speed takes care of the following yarn group.

From the table, you can see that if a 45/3 yarn runs at 350 yds. per min., 15/3 yarn would be undergassed at this speed. If the 45/3 yarn should be run at 189 yds. per min., the yarn would be overgassed and weakened.

Equivalent yarn No.	Yds. per min.	Yarns		
3s	140	6/2	9/3	12/4
4s	166	8/2	12/3	16/4
5s	189	10/2	15/3	20/4
7s	230	14/2	21/3	28/4
10s	280	20/2	30/3	40/4
15s	350	30/2	45/3	60/4
20s	410	40/2	60/3	80/4
30s	500	60/2	90/3	120/4

GASSING SPEEDS depend on the yarn number. This table gives speeds for various yarns run over burners with 12 holes per inch and hole diameters of 0.043 in.

Yarns for Homespun Fabrics Are Spun on Woolen System

Technical Editor:

What are homespun yarns and how are they spun? (1381)

Homespun was a term used originally for undyed woolen cloths made on hand looms from yarn spun on hand spinning wheels. The term is often used today for coarse plain-weave cloths made on power looms. Some homespun cloth is made today on hand looms in the mountains of some Southern states.

The yarn for homespun fabrics is a coarse, rugged yarn usually made on the woolen system. Although wool is the chief stock in yarns used for homespun fabrics, the wool may be blended with cotton, flax, or other fibers.

Don't Use Reheated Size Unless It Is Homogenized

Technical Editor:

We have hot-air slashers, and our warp yarns range from 8s to 60/2. What size formulas are successfully used for these yarns and what temperatures are used? Can size be used that has been allowed to reach room temperature and then reheated, and can potato starch be cooked successfully under pressure? (1365)

Because of the many variables involved in both slashing and weaving, the size formula should be tailored to the individual mill.

A standard formula is 100 lbs. of starch, 12 lbs. of tallow, and enough water to make 136 gals. of finished size. The type of heating element will have an effect on the amount of water needed.

If the cooking and storage kettles have coils or jackets, some of the water will be lost through evaporation. But if heating is by live steam, water will be added by condensation of the steam.

Size is kept at about 195° F. in the storage kettles and at about 205° F. in the size boxes.

Reheated size is not generally satisfactory for good slashing and wearing unless it has been homogenized. Thin-boiling corn starch is usually used for cooking under pressure.

Some Pointers on Keeping Filling Straight

Technical Editor:

We are dyeing and finishing nylon organdies and marquisettes and are unable to get the filling straight. How can we better finish these goods? (1374)

Batch the goods into rolls on a perforated cylinder about 10 ins. in diameter. Place the cylinder in a vat, and hook one end into a pumping system. Special machines are made to do this job.

The boil-off liquor, usually containing a detergent plus tetrasodium pyrophosphate or some other mild alkali, is pumped through the goods via the perforated cylinder. The vat is full of the liquor; so the goods are submerged in it during the boil-off period.

The goods may be dyed light shades in the same vat with dispersed colors or bleached with Textone or peracetic acid.

After this treatment the goods are flushed with fresh water to rinse them and are vacuum extracted, either in the vat or in a separate unit. There is little or no movement of the goods up to this point—the batching is done with great care to preserve the proper yarn alignment.

If you use a pin tenter, don't apply too much tension to very wet goods. This practice causes the middle to hang back while the selvages are carried along by the pins.

You should also have a weft-straightener at the head of the tenter.

These goods can also be scoured and dyed on jigs, but your problems are multiplied by the passage of goods from beam to beam and slippage of the goods next to the beam. A cotton leader would help to maintain alignment of the starting yardage on each beam.

Faulty Needles Cause These Holes in Fabric

Technical Editor:

After dyeing and finishing, small holes appear in our rib-knitted cloth. The holes appear to be in a vertical line, but we can find no holes when the fabric comes from the knitting machine. What do you think causes the holes? (1368)

Faulty needles will often cause such holes although the holes do not appear until the cloth is finished. The offending needle possibly has a sharp hook, a stiff latch, or a hook bent out of place.

The point of the hook penetrates the yarn but does not break the yarn. The penetration is deep enough to only fracture the yarn, and this fracture breaks out when the fabric is subject to stresses and strains applied during dyeing and finishing.

A yarn guide that is not set correctly will not improve the situation. The yarn is led across the point of the hook instead of into the hook; so set any protruding yarn guides back.

Incorrect timing of the needles will sometimes cause this fault. The dial-needle latches tend to cut the yarn like a pair of scissors as they are drawn back; so set the dial-needle knock-over to occur three or four needles after the cylinder-needle knock-over.

Hosiery Heels Can Be Made By Rotary Knitting

Technical Editor:

Some years ago, we heard that experiments were under way to produce seamless hosiery with no oscillating motions to form the heel and toe. Were these experiments successful? (1379)

British hosiery mills are using the principle of knitting heels in rotary motion to produce several thousand dozen pairs of seamless stockings each week. In addition to savings in production costs, the mills claim that the completed stockings look better than stockings made by conventional methods.

The heel is partly shaped by a boarding process. A certain number of courses are omitted from the instep during the heel knitting.

At the heel position, needles in the instep are taken out of the knitting action at selected courses to form more courses in the heel to form the pouch.

The extra courses at the heel side are anchored to the instep part of the stocking fabric along spaced wales instead of being joined to them only along one wale. The relative number of instep courses and heel courses can be varied.

The toe is also made in circular motion. One method of finishing the toe uses a seaming machine after the toe has been shaped by cutting.

Another method includes a narrow tuck or pleat in the upper end of the foot to prevent dog ears at the end of the toe.

This method of knitting heels in rotary knitting is patented, and mills pay royalties of about 5¢ per doz. The conversion cost of conventional machines is about $30.

Humanics — **A TW Brief**

A Pessimist Can Be Helpful

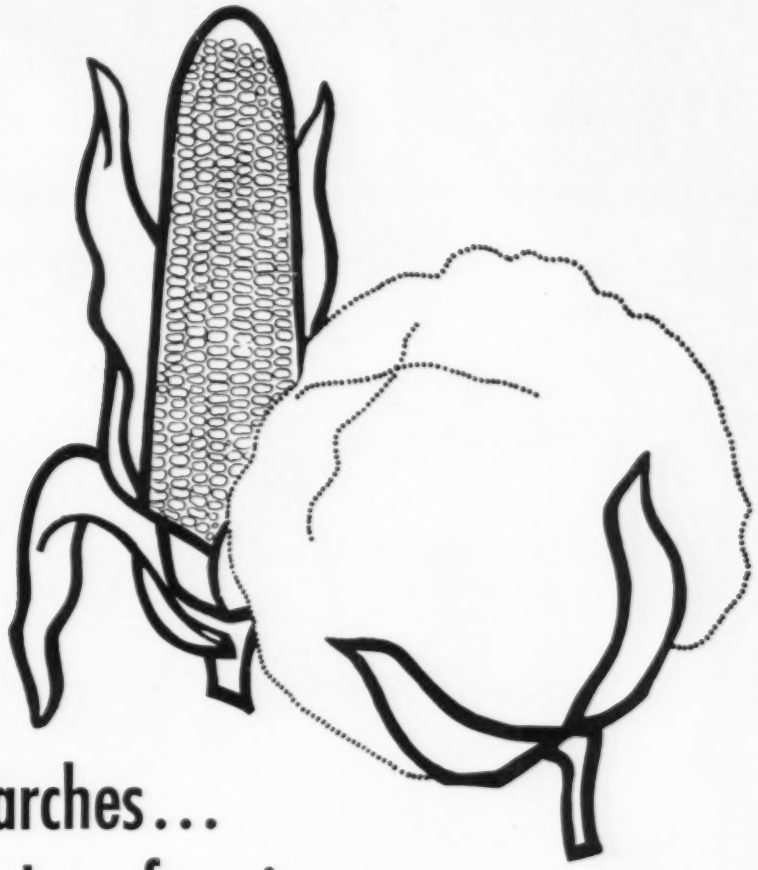
Willy Byrd is a dyed-in-the-wool pessimist. He always looks for the cloud that surrounds every silver lining. Willy can find fault with everything and everybody.

The supervisor of the department was asked why he listened to Willy's continual fault-finding.

"I find his pessimism helpful," the supervisor said. "Willy keeps me from being too self-satisfied. He always looks on the dark side and often comes up with good suggestions. I am often carried away with my own ideas and fail to see their shortcomings until Willy points them out.

"I sometimes work so hard trying to prove he's wrong that I accomplish more than I would otherwise. Willy is really an asset. He helps us keep our feet on the ground. I'll admit that his negative outlook is depressing at times, but much of his criticism is constructive."

So, if you have a pessimist in your group, don't try too hard to make an optimist of him. It may be that he is more valuable just the way he is.—GEORGE M. DODSON.



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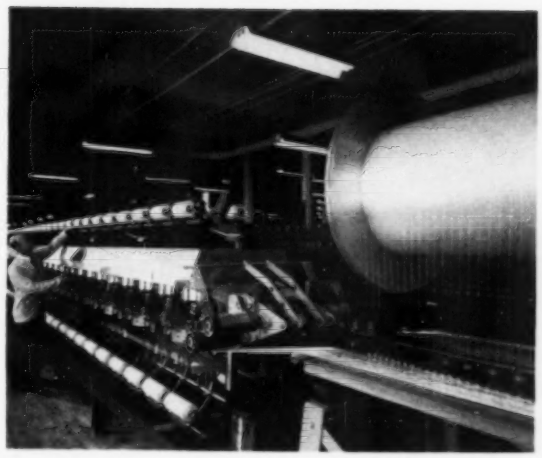


Clarkson Cord Former

A machine that produces nylon tire cord from the manufacturer's beam in one operation has been developed by U. S. Rubber Co. at its Winnsboro, S. C., plant.

The machine produces a package of two-ply yarn weighing up to 40 lbs. that is ready for the loom creels. It is designed primarily for making nylon tire cord but can be used to make rayon tire cord as well.

A wrapping action rather than actual twisting is used to produce the plied yarn.

The yarns from the supply beam are led into the cord former through a suitable tension device. Half of the ends are put through metering rolls and are led to an eye mounted at the edge of a rapidly rotating disk. Within the balloon formed by this yarn, another package of yarn is mounted.

The free end of this package is fed through metering rolls and joined to the end being fed from the beam. The ends pass through a hollow spindle in which the wrapping action takes place and are delivered to the creel package.

The other half of the ends from the beam are led to the top of the machine, where they are wound into packages that will be used to replace the package mounted on the hollow spindle.

The Clarkson cord former produces a tire cord in which stresses in each ply are exactly balanced.

U. S. Rubber Co. holds a patent on the machine and plans to license it for use by other manufacturers. Its own production installation of 1,120 spindles will probably be at its Shelbyville, Tenn., plant early in 1959.

Circle T-1 on Reader-Service Card

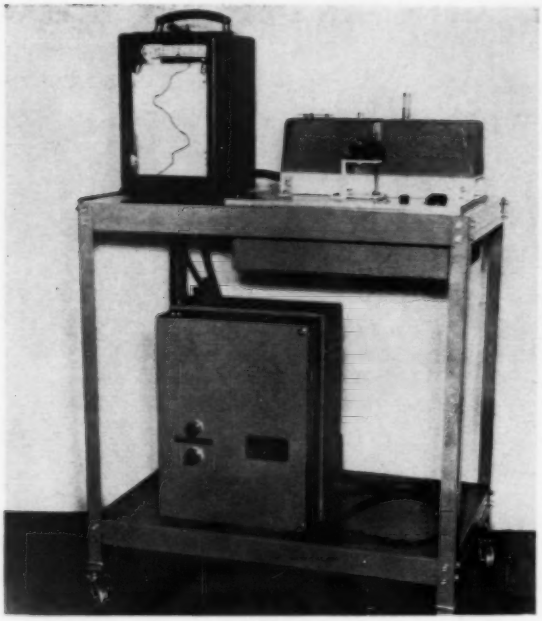
Quick-Connect Couplings

A line of quick-connect and disconnect couplings, D-Series interchangeable couplings, has been introduced by Perfecting Service Co., 332 Atando Ave., Charlotte 6, N. C. This line of couplings is interchangeable with other manufacturers' couplings and offers greater flow and less pressure drop.

The couplings are smaller, more rugged, and more compact. They are available in several styles of end connections: male, female, hose-stem, and reusable hose-end connections in sizes of ¼, ⅜, ½, and ¾ in. with working pressures up to 10,000 psi.

One-hand operation, Pushomatic action, is built into the coupling design. The coupling locks automatically without being turned or twisted. The locking mechanism makes a positive leakproof connection that's highly resistant to impact or rough handling. Full 360° swivel action reduces tool-operator fatigue and eliminates hose kinking.

Circle T-2 on Reader-Service Card



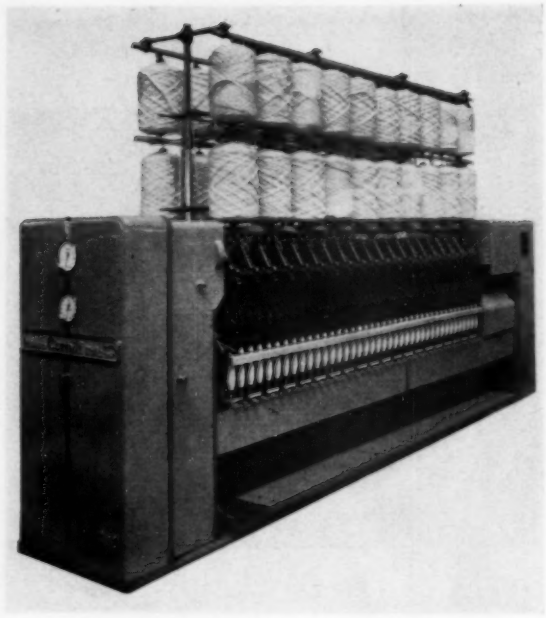
Thread-Diameter Inspector

A quality-control instrument that measures and records diameter deviations in lengths of such materials as thread, wire, and monofilament has been announced by Industrial Gauges Corp., West Englewood, N. J. The electronic instrument inspects any convenient length of material from about 0.001 to 0.100 in. in diameter.

Sample lengths of material are taken directly from the production line and run through the instrument, and the operator adjusts production equipment immediately when diameter deviations fall outside allowable limits.

A pair of rubber pinch rolls draws the material through a field of light produced within the gauge head. Phototubes detect variations in the shadow size of the material, and these variations are amplified and translated for the recorder by electronic circuits within a measuring console.

Circle T-3 on Reader-Service Card



Direct-Spinning Frame

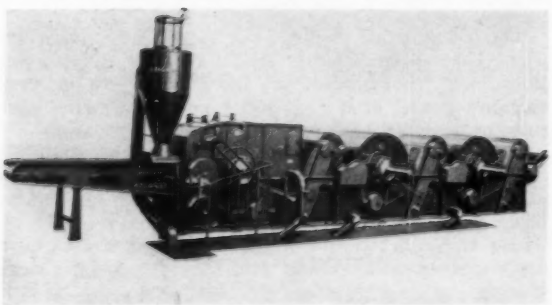
A direct-spinning frame 28 ins. wide that is supplied by ball warps creeled over the frame has been developed by A. Carniti & Co., Oggiono, Italy, and introduced to American mills by Stellamcor, Inc., 60 E. 42nd St., New York 17, N. Y.

Except for the special creel, a pendulum arm, and one additional pair of drafting rolls and condensers, the frame resembles conventional frames. Drafts up to 140 are possible.

The ball warps are produced on a high-speed drawing frame (second process) equipped with a balling attachment that makes 11x16-in., 8-lb. balls. Each ball has two slivers and feeds two spindles.

The frame comes equipped with motor and suction cleaning. Top rolls have roller bearings.

Circle T-4 on Reader-Service Card



Hard-Waste Opener

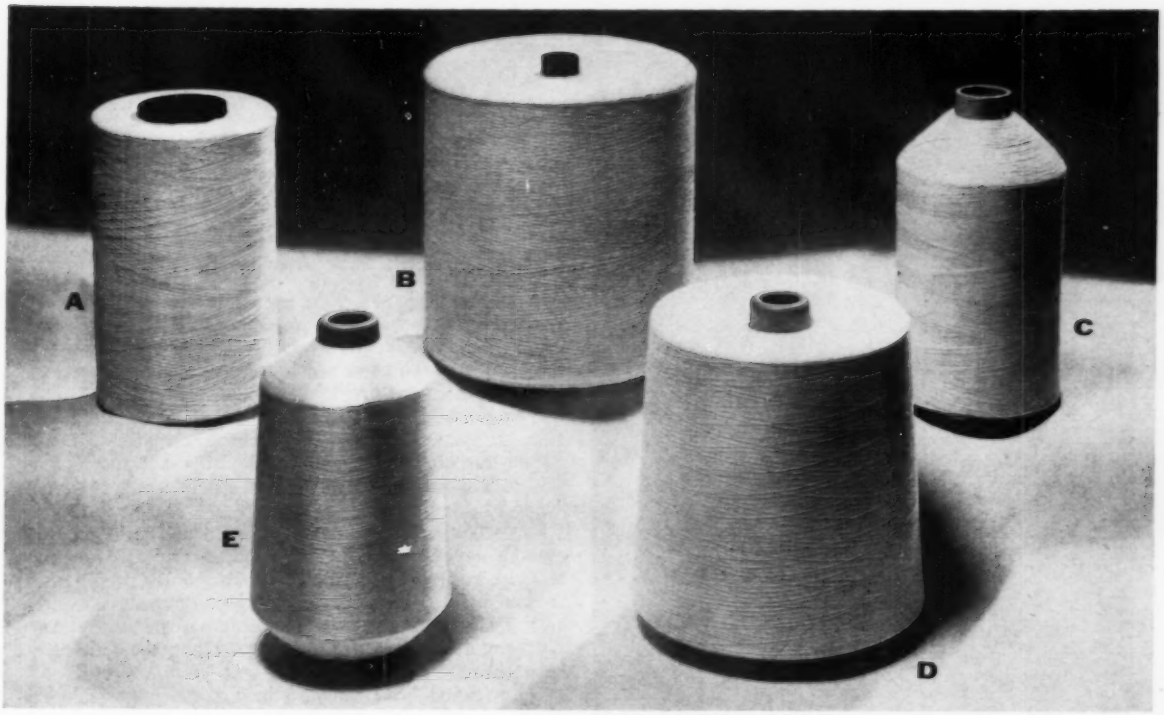
The RM 7/3 rag and hard-waste opener announced by Oreste Rolando, Biella-Chiavazza, Italy, has three cylinders to tear and open rags, clippings, knitwear, felts, hard ends, and roving wastes. Materials of wool, cotton, silk, jute, and man-made fibers can be processed.

Separation is done on all three cylinders, and there is a patented apparatus for the extraction and conveyance of the pieces to the feed lattice. Other machines are made with one to seven cylinders.

Oreste Rolando is represented in the U. S. by Stellamcor, Inc., 60 E. 42nd St., New York, N. Y.

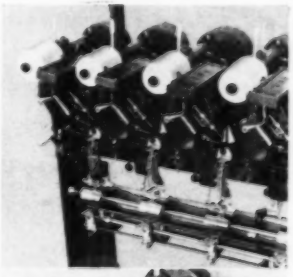
Circle T-5 on Reader-Service Card

For Versatility and Quality Packages



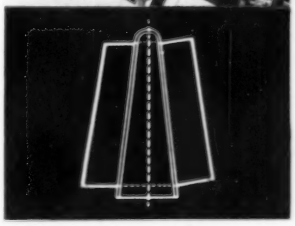
A — 1⅝" dia. rayon dye tube. B — 6" parallel tube of cotton yarn. C — King spool of cotton thread. D — Straight edge cone of filament yarn. E — Pineapple cone of filament yarn.

Use the FOSTER MODEL 75 WINDER



Pineapple cone attachment

1⅝" dye tube holder and pressure roll assembly for producing rayon dye packages, any softness desired.



Right-hand side of diagram shows how Foster Model 75 cone is wound. Left hand side shows how conventional cone is wound.

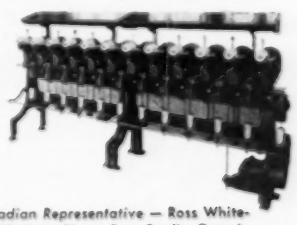
VERSATILITY — The photograph above shows five different types of packages that can be produced on the Foster Model 75. Different machine parts, of course, are required, for different packages, but changeovers are readily made.

QUALITY PACKAGES — The Foster Model 75 uses the precise wind principle. Motive power is applied direct to the spindle, rather than to the surface of the package, and each spindle is driven by an individual 180° contact, quarter turn belt, insuring constant spindle speed.

The Model 75 cone has a convex base. The base is at about 90° to the surface of the paper carrier instead of to the axis of the spindle. Thus each layer of yarn at the base is in a progressively higher horizontal plane, so that it does not nip the layer below. This construction also directs the pressure of the yarn downward, enabling the cone to hold its shape and preventing sluffing.

Machine contact with the yarn is minimized, so that soiling of expensive fibres is avoided.

SEND FOR BULLETIN A-92-B. Learn about other quality features of the Foster Model 75, which cannot be described here, due to lack of space.



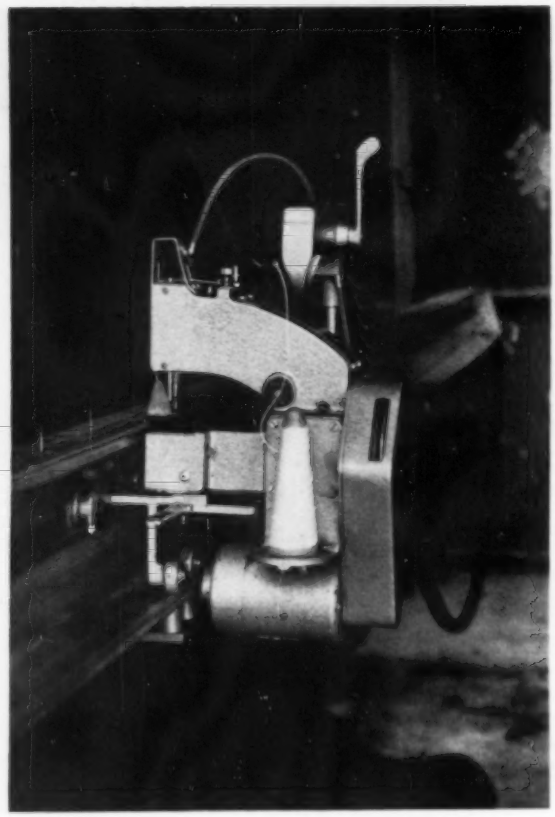
FOSTER MACHINE COMPANY

A Yarn Winder for Every Purpose

Westfield, Massachuestts, U.S.A.

Southern Office — Johnston Bldg., Charlotte, N. C. • *Canadian Representative* — Ross Whitehead & Co. Ltd., 1475 Mountain St., Montreal, Que. and 100 Dixie Plaza, Port Credit, Ontario *European Representative* — Muschamp Textile Machinery Ltd., Keb Lane Bardsley, Oldham, England.

For more data, write this page number on Reader-Service card. →



Carpet Sewing Machine

A railway sewing machine for joining carpets for continuous processing has been announced by Trumeter Co., 38 W. 32nd St., New York 1, N. Y. The machine can be fixed to the machine as a unit for an individual process or it can be fitted with portable stands.

The machine will sew across 10-ft.-wide carpets in less than 10 secs.; and carpet backings, carpets with pile, tufted carpets, and carpets with latex backing can be sewed. The machine sews a chain stitch, which is quickly removed after processing.

Carpets to be joined are fixed to the machine with suitable holders, and the sewing head traverses to give a straight seam. The machine with the motor drive is held in one hand, which also operates the starting button as the machine traverses. The machine is quickly returned to the starting point by pushing it along the rails on its own rollers.

The sewing head can also be used as a portable machine by detaching it from the railway carriage and taking it to the carpets to be sewed.

Circle T-6 on Reader-Service Card

Low-Temperature Pyrometer

A radiation pyrometer that can be used to measure fabric temperatures directly in textile drying or curing operations has been marketed by Velotron, Inc., 1186 Broadway, New York 1, N. Y. The instrument is based on a thermopile made up of 23 thermocouples.

The pyrometer is designed to take into account the effect of ambient temperatures on the housing and other factors that would affect accurate and constant temperature measurement.

The front of the housing is sealed with a plastic film that passes radiated heat but keeps dust or moisture out of the instrument. The pyrometer is accurate to ±1° F. and responds to temperature changes in 1 sec. or less.

The instrument can be coupled with a recording potentiometer to indicate and record fabric temperatures and, as a final step, to control fabric temperature through suitable linkages with speed-control mechanisms.

Circle T-7 on Reader-Service Card

Using Salt Efficiently

by INTERNATIONAL SALT COMPANY, INC.

How to Measure Brine Strength on Different Hydrometer Scales

The most common method of measuring brine strength in industry is to use some type of hydrometer. Every hydrometer sinks into a liquid until it has displaced a weight of the liquid equal to its own weight. The scale divisions on a hydrometer are not usually of equal length, since the volume of displaced liquid increases as more of the stem is immersed.

Using a hydrometer is a relatively simple process—but reading the hydrometer scale is complicated by this fact: the scale may vary from plant to plant because hydrometers may be used to measure strength of other liquids, as well as salt brine. To help clear up any possible confusion, here are an explanation and a comparison of the five most common hydrometer scales used for measuring brine strength.

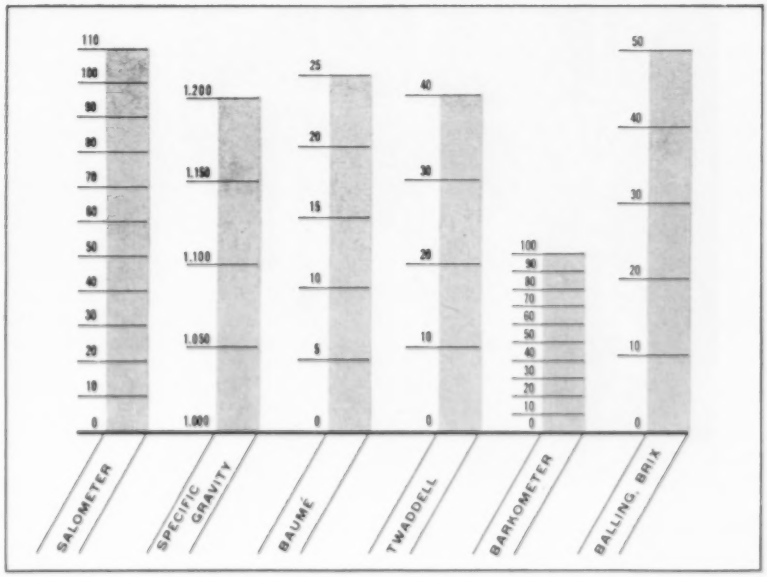
SALOMETER SCALE. This is by far the most common of all the hydrometer scales used for testing brines. The scale indicates directly the per cent saturation of the brine, reading 0° S. in pure water, and 100° S. in fully saturated brine. The salometer uses the values of Gerlach, meaning that 100%-saturated brine contains 26.395% salt by weight. Each salometer degree, then, represents 0.2639% salt.

The salometer reading expresses the per cent of saturation. Thus, a brine of 40° S. strength is 40% saturated, and contains 40% of 26.395%, or 10.558% salt by weight.

SPECIFIC GRAVITY SCALE. This reads the specific gravity of the brine *directly*. These hydrometers may be obtained with the entire length of scale covering a limited range of specific gravities, thus permitting great accuracy.

BAUMÉ SCALE. This scale was originally intended to have each degree equal a per cent of salt in the brine. But this is now only a rough approximation. The Baumé scale reads 0° Bé. in pure water, 24.6° Bé. in fully saturated brine. Also, a factor of "modulus" is needed to translate degrees Bé. to specific gravity, since the scale divisions are of equal length. This modulus has been standardized at 145, so that degrees Bé.=145–145/sp.gr.

TWADDELL SCALE. Named after its inventor, the Twaddell scale reads 0° Tw. in pure water, 40.8° Tw. in fully saturated brine. Each increase of 0.005 in specific gravity causes 1° increase on the Twaddell scale. Thus, the number on the right of the decimal point of the specific gravity, divided by 5, is the degrees Tw. For example: 1.140 sp.gr. is 140/5, or 28° Tw.



COMPARISON OF COMMON HYDROMETER SCALES

(Chart gives quick, visual relationships of readings on the salometer scale to readings on other scales.)

BARKOMETER SCALE. Used extensively for testing tanning liquors, the Barkometer scale reads 0° Bk. in distilled water, and 204° Bk. in fully saturated brine. Each increase of 0.001 in specific gravity causes 1° increase on the Barkometer scale. Thus, the number on the right of the decimal point of the specific gravity is the degree Bk. For example, 1.025 sp.gr. is 25° Bk.

The hydrometer scales described above are usually calibrated for brines at 60°F. temperature. When testing brines at other temperatures, it's necessary to make certain corrections... or to use a specially designed hydrometer. You can get a table showing proper temperature corrections, plus other data on measuring brine strength, from International Salt Company.

Using salt in its many industrial applications calls for technical knowledge and experience. International Salt Company has both—plus a continuing program of research and development in salt. These things can be put to work for you . . . in your plant . . . to help you get the most out of the salt or brine you use.

INTERNATIONAL SALT CO., SCRANTON, PA.

Sales Offices: Atlanta, Ga.; Chicago, Ill.; New Orleans, La.; Baltimore, Md.; Boston, Mass.; Detroit, Mich.; St. Louis, Mo.; Newark, N. J.; Buffalo, N. Y.; New York, N. Y.; Cincinnati, O.; Cleveland, O.; Philadelphia, Pa.; Pittsburgh, Pa.; Memphis, Tenn.; and Richmond, Va.

Service and research are the extras in STERLING SALT
PRODUCT OF INTERNATIONAL SALT COMPANY, INC.

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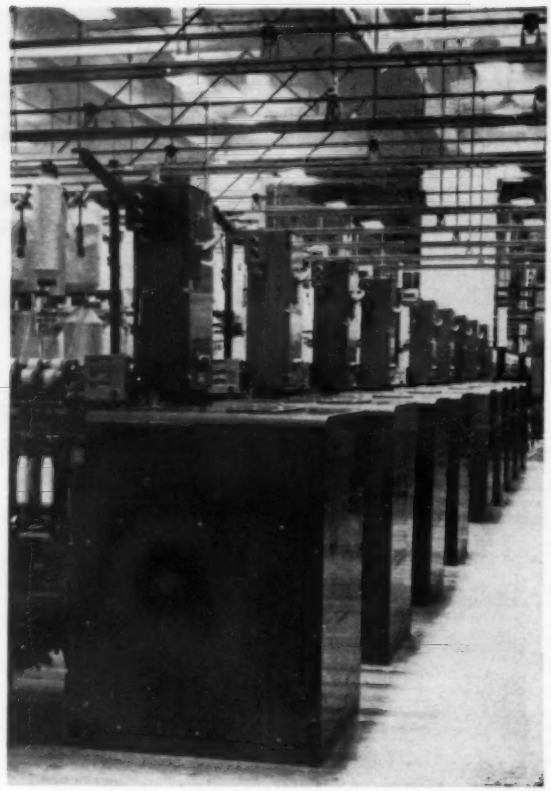


Central Air-Handling System

A central air-handling system, Pneumakool, has been announced by Pneumafil Corp., 2516 Wilkinson Blvd., Charlotte 8, N. C. The system makes it possible to contionously pick up and remove yarn-manufacturing-frame motor heat. Therefore motor-alley hot spots are eliminated regardless of outside atmospheric conditions.

Air is picked up by suction flutes along the length of the frame; and this air is blown gently over the frame motors, which have a specially designed enclosure.

The heat dissipated by the frame motor and the air are carried out through a central duct. They are either exhausted to the outside or returned to the room via the air-conditioning system, or they can be returned through any other suitable return method.

The motor is easily accessible by removing any of the side panels, which are joined by quarter-turn, quick-disconnect fasteners. Balancing dampers are also furnished with each unit for uniform frame performance.

The manufacturer says that this air-handling system can be added to any type of unit system or central air-handling system now in operation. [An installation is described on p. 59.]

Circle T-8 on Reader-Service Card

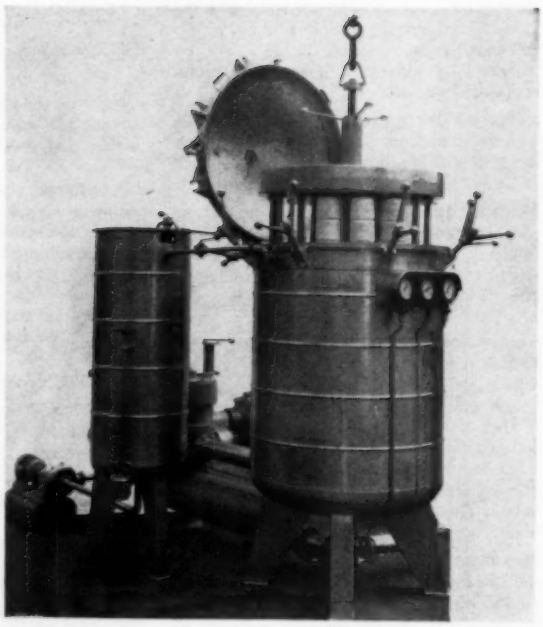
Pressurized Package-Dyeing Unit

Working temperatures up to 275° F. can be developed in a package-dyeing system developed by Industria Lavoraziani Metalli Antiacidi, Schio, Italy. U. S. representative is Stellamcor, Inc., 60 E. 42nd St., New York 17, N. Y.

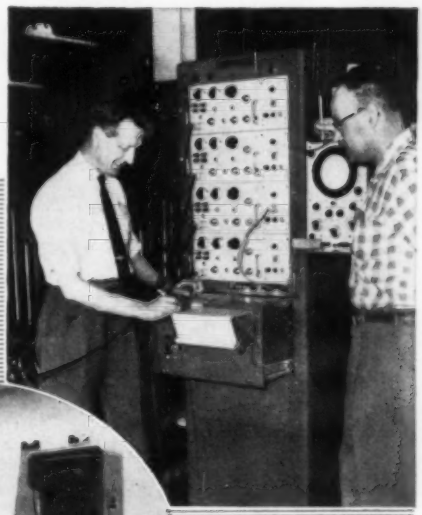
Features of the machine include: all stainless-steel construction, separate static-pressure system, automatic flow reversal governed by a variable timer, and an injection pump coupled with a supply tank for adding dyes or chemicals.

Static pressure is independent of temperature, and additions can be made to the closed vessel through the injection pump. Capacities of standard models range from 25 to 200 kilograms of yarn.

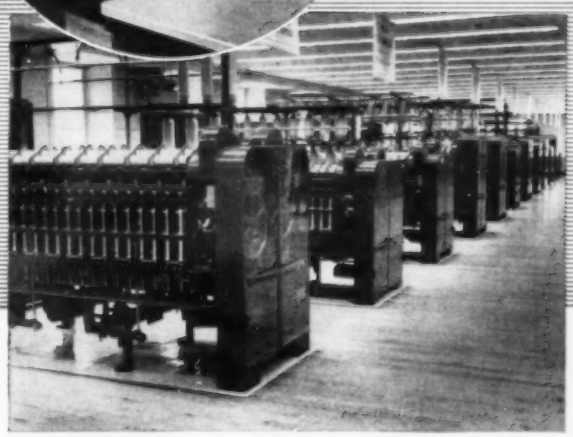
Circle T-9 on Reader-Service Card



WHITIN RESEARCH...



Views inside Whitin Research Division showing portions of our testing, laboratory and processing facilities.



Birthplace of the Mill of Tomorrow

75 Whitin engineers and technicians, especially skilled in research work, are constantly at work seeking new data, testing new methods and developing new machines. The objective of this group, the permanent staff of the Whitin Research Division, is the development of machinery or methods which will enable you to process your product faster, better, or at lower costs — and with increased profits.

The time and talents of these people are devoted solely to:

1. Pure research on fibers and fiber processing.
2. Applying new textile knowledge to machinery design.
3. Improving productivity, function and efficiency of present Whitin machinery.

67 different models of our mill machinery in operation provide unexcelled opportunities for rapid analysis, evaluation, and solution of a wide variety of technical textile problems from opening through winding. These same facilities are available and frequently used for testing mill stock and assisting customers in determining and securing the best processing conditions.

Today, Whitin research, carried on with vigor, skill and imagination, will indeed give shape to the mill of tomorrow!

Buy "competition insurance" -BUY WHITIN!

We cordially invite you to visit the Whitin Research Division—to see for yourself what Whitin is doing to promote more profitable mill operation.

Whitin MACHINE WORKS

WHITINSVILLE, MASSACHUSETTS

CHARLOTTE, N. C. • GREENSBORO, N. C. • ATLANTA, GA. • SPARTANBURG, S. C. • DEXTER, ME.

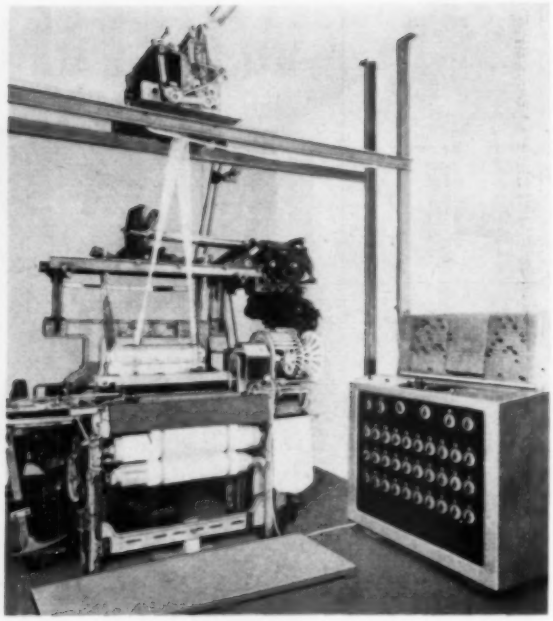
For more data, write this page number on Reader-Service card. →

Polyethylene-Bag Packager

The Model 111-11 bag packager, announced by Errich International Corp., 5 E. 35th St., New York 16, N. Y., can open flush-ended polyethylene bags at speeds in excess of 1,200 units per hour. Lip-type polyethylene bags can be opened at speeds up to 1,500 units per hour.

Operators can learn to operate the machine in 20 mins. and reach peak efficiency in an hour or two. Mirror-polished metal product guides are precisely balanced and can easily fill flimsy materials with no danger of damage or slowing of production.

Circle T-10 on Reader-Service Card



Loom Attachment

A loom attachment that will weave names into the cloth without the use of jacquard cards has been introduced by A.B.C. Textile Machinery Co., North Bergen, N. J.

The names to be woven can be set in an electrical plug board by the operator, and the apparatus will control the weaving of the name by an electromagnetic system.

With this loom attachment, it is possible to personalize towels, table cloths, sheets, napkins, and other items with woven names in large or small lots on an economical basis.

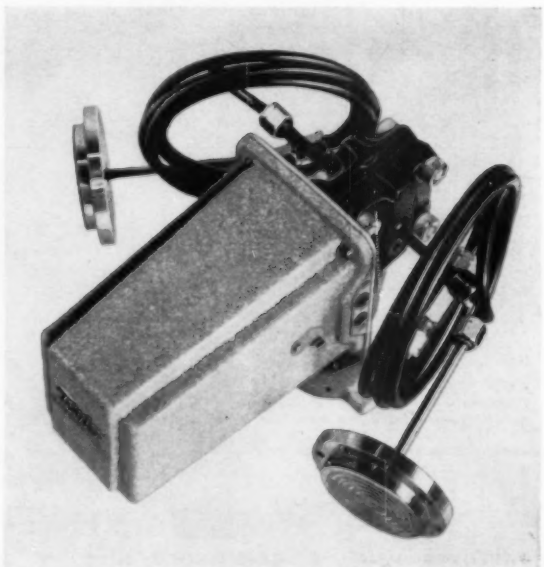
Circle T-11 on Reader-Service Card

Flow and Level Transmitter

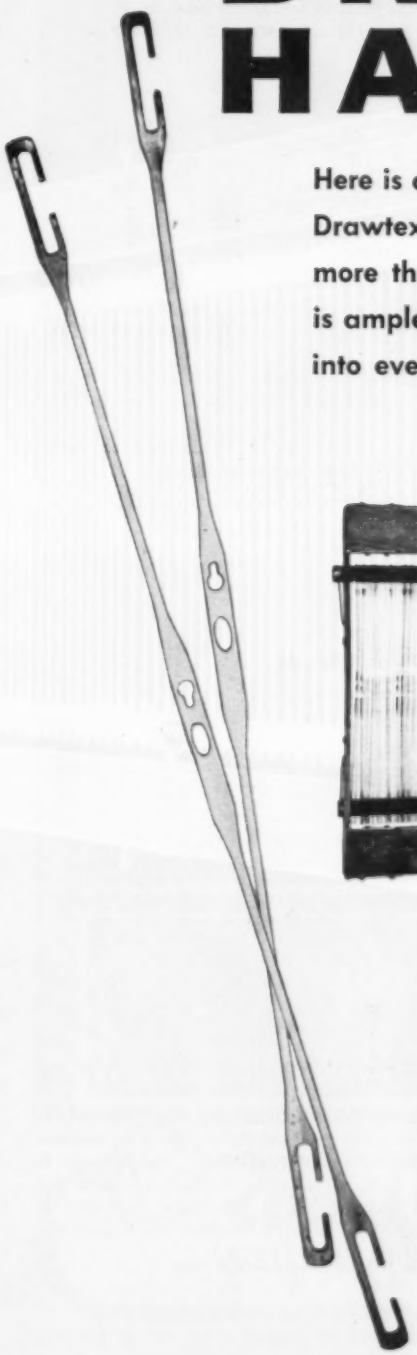
Rate of flow and liquid levels of difficult materials such as jells, slurries, corrosive fluids, and suspensions can be checked with a pressure-sensitive transmitter developed by Taylor Instrument Cos., 95 Ames St., Rochester 1, N. Y.

The Taylor 205T Volumetric Differential Pressure Transmitter consists of sensing units that may be mounted inside a conventional chemical tee or on a standard 3-in. flange. The transmitting portion of the level-control system is based on the Taylor 333R transmitter.

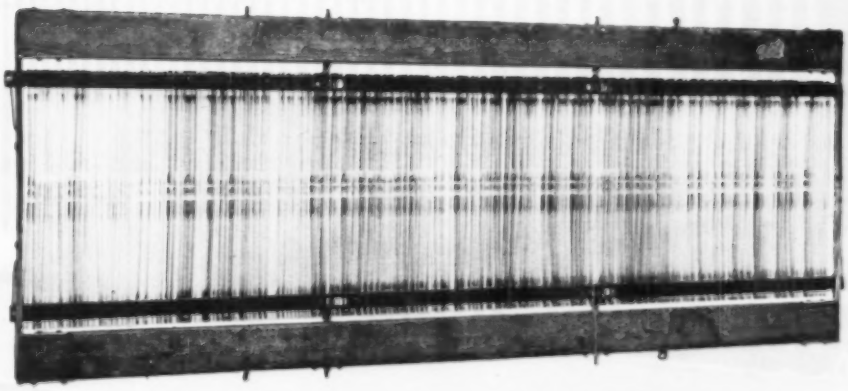
Circle T-12 on Reader-Service Card



20 TROUBLE-FREE YEARS from this Stehedco DRAWTEX HARNESS



Here is an unretouched photograph of one of the original Stehedco Drawtex Harness Frames with the original Heddles after giving more than twenty years of continuous trouble-free service. Here is ample proof of the fine quality and exceedingly long life built into every Stehedco product.



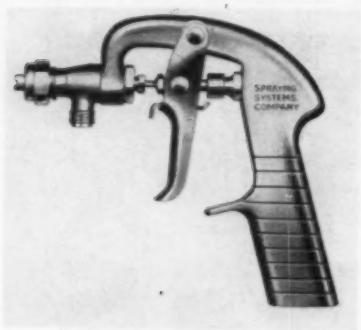
Ever since the revolutionary Stehedco Drawtex Harness was first introduced it has become increasingly popular because of its exceptional versatility and dependability for increasing loom efficiency and producing better quality goods at lower cost.

Ask our qualified Field Engineers to show you how Stehedco Drawtex Heddles and Frames can greatly improve YOUR production efficiency and economy.

Stehedco
STEEL HEDDLE MFG. CO.
PHILADELPHIA 32, PA.
SOUTHERN SHUTTLE DIV.
GREENVILLE, S.C.
Southern

F-5731

Other Plants and Offices: Granby, Quebec, Canada — Lawrence, Mass. — Greensboro, N.C. — Atlanta, Ga. — Textile Supply Co., Dallas, Texas — Albert R. Breen, Chicago, Ill.



Chemical-Cleaning Spray Gun

A gun to spray cleaning chemicals on looms and other textile machines has been announced by Spraying Systems Co., 3233 Randolph St., Bellwood, Ill. The spray gun is portable and is operated manually.

A trigger lock for continuous spraying is easily engaged by a slight pressure of your index finger and is automatically disengaged when your finger is drawn completely back. Spray control is positive and instantaneous, with drip-free shutoff. The gun is designed for pressures up to 800 psi.

Circle T-13 on Reader-Service Card

Flax Stripping Machine

A flax stripping machine developed by R. Nixon, Waimangaroa, West Port, New Zealand, extracts 1 ton of straw fiber for every 4¼ tons of unprocessed flax leaf fed to it.

The machine strips two sides of the raw flax leaf at the same time and saves about $17 on each ton of green leaf at the mill.

Two synchromeshed drums have a clearance of only 0.003 in., and they turn at 1,700 rpm. Two rolls retard the feed of the raw flax leaves.

Circle T-14 on Reader-Service Card

Narrow-Fabric Loom

A high-speed nylon narrow-fabric loom for the production of automobile safety belts has been announced by Fletcher Works, Inc., Glenwood Ave. & Second St., Philadelphia 40, Pa.

The loom has a speed of almost 200 ppm. for nylon belting. It has a broad beam let-off and heavy-duty stop motion.

The loom has the latest type of Warner clutch-brake drive with start, stop, and jog push buttons mounted within easy reach of the operator.

Circle T-15 on Reader-Service Card

Spinning Ring for Blends

A ring for spinning and twisting 6-oz. wool-and-Dacron blends has been announced by Herr Mfg. Co., Inc., 309 Franklin St., Buffalo 2, N. Y. This ⅛-in. face ring is particularly suited to spin light yarns at high spindle speeds.

The single oil reservoir supplies lubrication to all bearing surfaces of the ring. Travelers are light and rigid to balance the light outward thrust of the yarn and prevent yarn breakage. These rings fit all standard machines.

Circle T-16 on Reader-Service Card

Dryer for Man-Made Fibers

A line of dielectric heaters that includes units up to 200 kw. has been announced by Allis-Chalmers Mfg. Co., 1056 S. 70th St., Milwaukee 1, Wis. The heaters are used with ovens to dry man-made fibers. They are also used to twist-set rayon cord.

Completely assembled equipment is 69 ft. long and consists of a power cubicle, oscillator section, and oven; five 200-kw. heaters are used.

Circle T-17 on Reader-Service Card

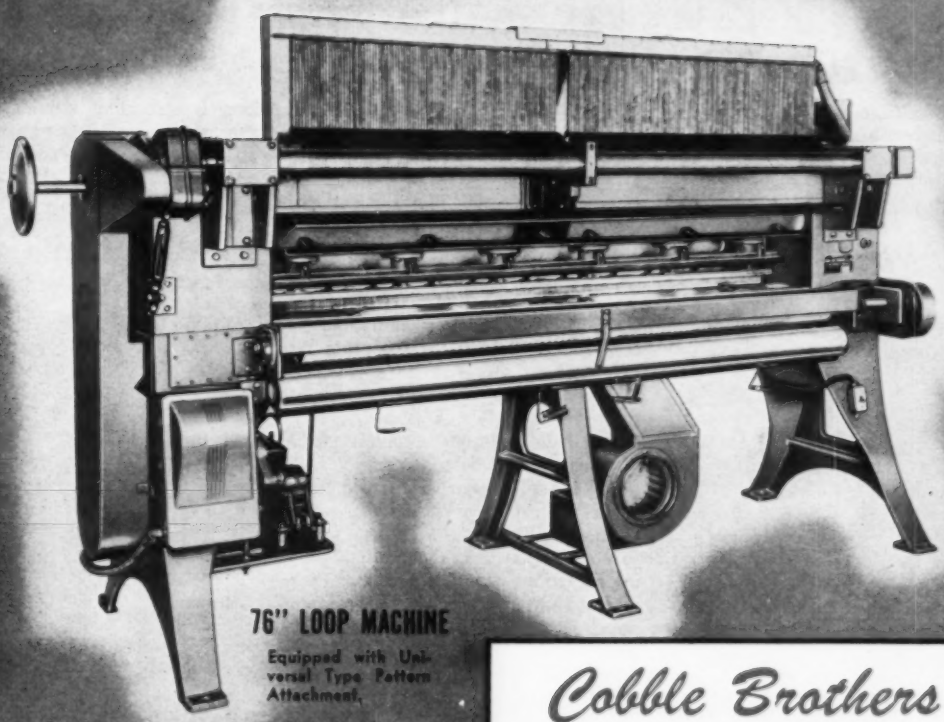
Textile Rolls

Two new developments in textile rolls have been announced by Raybestos-Manhattan, Inc., Passaic, N. J.

One roll, Textractor, is said to extract more water than conventional rubber rolls without sacrificing the cushioning effect of rubber. The other, Texroc, extracts up to 10% more water than metal rolls, exhibits reduced dye pickup, and does not pit. Both types may be used in pairs or as a component of metal-rubber combinations.

Circle T-18 on Reader-Service Card

COBBLE
TUFTING MACHINES



76" LOOP MACHINE
Equipped with Universal Type Pattern Attachment.

Cobble Brothers
UNIVERSAL
PATTERN MACHINE

Just a few of the unlimited number of rug designs that can be made on Cobble Brothers Loop Machines equipped with Universal Type Pattern Attachment.

COBBLE BROS. MACHINERY CO.

RIVERSIDE DRIVE • PHONE OX 8-3481 • CHATTANOOGA, TENN., U.S.A.
GATE STREET WORKS • BLACKBURN, LANCASHIRE, ENGLAND

OVERSEAS AGENTS: ANDRE MANUEL, 82 Blvd. Haussmann, Paris 8, France - NOEL P. HUNT & CO., Pty. Ltd., 1-11 Hawke St., Melbourne C1, Australia

For more data, write this page number on Reader-Service card. →

Low-Friction Spinning Ring

A spinning ring with 60% less surface coefficient of friction and that requires no breaking in has been announced by Nippon Spindle Mfg. Co. Ltd., Amagasaki, Japan. The working surface is extra hard.

The ring is sold in North America by Edward S. Rudnick, Box 244, New Bedford, Mass.

Circle T-19 on Reader-Service Card

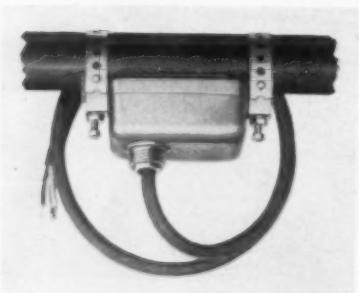
Hosiery-Form Cleaner

Formex cleaner and finisher, developed by Reading Testing Laboratories, Inc., 658 S. Seventh St., Reading, Pa., is used to remove size, finish, and residue from hosiery-boarding forms.

A cloth is saturated with the cleaner and applied to cold or warm boarding forms. The cleaner leaves the boarding forms as clean as new, and it prevents picks and pull threads.

The finisher is then applied to impart a glass-like surface. The application is repeated every two or three days.

Circle T-20 on Reader-Service Card



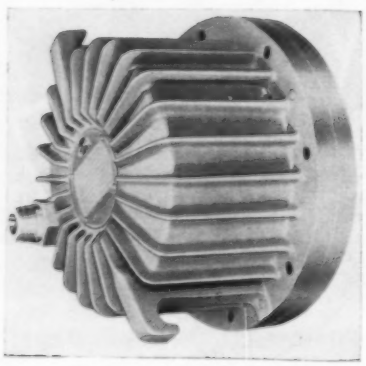
Summer-Winter Thermostat

A summer-winter change-over thermostat announced by Barber-Colman Co., Rockford, Ill., is designed for combination heating and cooling air-conditioning units.

The thermostat senses the temperature of the supply media and reverses the control action of the room thermostat sensing element to comply with the flow of either hot or chilled water. It can also be used in many process-control applications.

The switch action is single-pole, double-throw, snap-acting. The thermostat has a nonadjustable control-point setting of 70° and a fixed differential of approximately 15°. It may be mounted in any position and comes with mounting strapping for easy installation.

Circle T-21 on Reader-Service Card



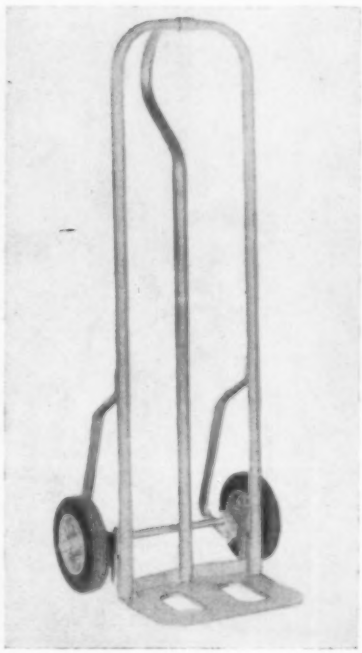
Circle T-22 on Reader Service Card

Immersible Motors

Immersible electric motors in ¾ to 40 hp. in both polyphase and single-phase have been announced by Louis Allis Co., 427 E. Stewart St., Milwaukee 7, Wis. They are designed to be close coupled to pumps and are operated submerged in sewerage sumps, water, chemicals, or abrasive cutting oils.

The motors operate continuously at rated load with a temperature rise not above 55° C. when completely submerged in liquids with an ambient temperature of 40° C. or less.

Polyphase-motor standard voltages are 208, 220, 440, or 550 v. (single voltage only) on three-phase 60 cycles. Single-phase motors are 115 or 230 v. for ¾ to 2 hp. and 230 v. only for 3 to 5 hp.



Lightweight Trucks

A complete line of aluminum trucks has been announced by Nutting Truck & Caster Co., Faribault, Minn.

The trucks can be used in plants, warehouses, and stock rooms to transport boxes, cartons, cases, drums, and kegs.

Tires are a punctureproof, semi-pneumatic type for both indoor and outdoor use. The wheels have roller bearings.

Circle T-23 on Reader-Service Card

CONTINUED ON PAGE 154

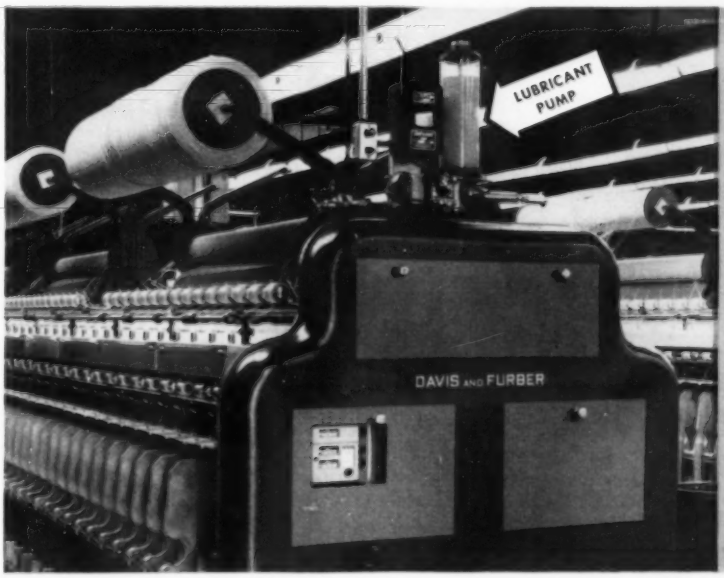
lubri-facts from Lincoln

No. 109 of a series of case histories on the vital role of lubricant application systems in engineering design.

WORKING TO STEP UP OUTPUT AND EFFICIENCY OF ORIGINAL EQUIPMENT, DESIGN ENGINEERS DEPEND ON...

Lincoln Power Lubrication Systems

- Assure positive high pressure lubrication to all bearings, simultaneously
- Increase machine efficiency in the field, in the plant, on the road
- Pay for themselves in lower operating costs—longer machine life



Case History:

DAVIS and FURBER

Controlled automatic lubrication is applied correctly to all the rings of this high speed, ultra-modern spinning frame to assure the proper amount of uniform traveler life at known speed ranges.
Benefits: Better spinning with less breakage, high spinning speeds and more uniform yarn twist.
Results: Complete customer satisfaction.

Davis and Furber is one of many progressive manufacturers who are opening up new sales opportunities for their spinning frames by creating a design equipped with Lincoln Power Lubrication Systems. This tested, low-cost method of automatic lubrication permits simultaneous injection of oil or grease to all bearings in seconds on individual textile machines or on automated production lines. Lubricant is applied under pressure at predetermined time intervals—unerringly, automatically—while the machines are in operation. Extends bearing life, ends costly lubrication down-time. Frees maintenance manpower for productive work.

Add extra sales features to the equipment you design. Specify cost-cutting Lincoln Power Lubrication Systems. Write today for full details. Ask for Engineering Catalog No. 811R.

Most trustworthy name in modern lubrication equipment for industrial, automotive, agricultural, construction and other uses.

Lincoln

LINCOLN ENGINEERING COMPANY
Division of The McNeil Machine & Engineering Co.
5789 Natural Bridge Avenue • St. Louis 20, Missouri

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Whatever you buy
IN TEXTILES "made in U.S.A."
gives quality you can trust

Stickers for your mail are offered at no charge.
Large quantities at cost as a public service.

We invite you to put your local **S-W** man on the SPOT

He can **SPOT** *trouble and* **STOP** *wasted time for recovering rubber rolls if you will use the S-W Roll-Guard Plan.*

S-W INC.

Ask him to prove this in your mill, on your machinery, this month.

STOWE-WOODWARD, INC. Griffin, Georgia · Newton Upper Falls, Mass. · Neenah, Wisconsin

NEW LITERATURE

TEXTILE MACHINERY AND AUXILIARY EQUIPMENT

Variable-speed drives—How to select a drive for different applications outlined in 8-p. bulletin from Sterling Electric Motors, Inc. **(F-1)**

Torque converter—Drive for fork lift trucks described in booklet BU-465 from Allis Chalmers Mfg. Co. **(F-2)**

Pin drafter—Folder gives full specifications of wide setover pin drafter made by Warner & Swasey Co. **(F-3)**

Fluid-power drive—Bulletin 10600 explains the advantages, operation, and characteristics of Any-Speed drives from The Oilgear Co. **(F-4)**

Adjustable-speed drives—Available in units of 5 to 200 hp. described in Bulletin No. 2000 from Louis Allis Co. **(F-5)**

Sludge disposal—A machine that collects sludge, chips and waste oil from machine tool sumps or pits and transports and discharges it is described in bulletin from Gorske Industrial Equipment Co. **(F-6)**

Sewing machine—For the production of service shirts and pants described in Bulletin No. 251 from Union Special Machine Co. **(F-7)**

Fire-detecting and extinguishing equipment—Catalog P-40 is available from Walter Kidde & Co., Inc. **(F-8)**

X-Ray microscope—With electron microscope conversion is described in 6-p. folder from Phillips Electronics, Inc. **(F-9)**

Belt drive—Catalog TB-58 contains full information on selection, installation, and use of Timing belt drives. Morse Chain Co. **(F-10)**

Pyrometers—Catalog No. 175 lists descriptive and technical data on optical, radiation, immersion, surface, and indicating pyrometers from Pyrometer Instrument Co., Inc. **(F-11)**

Laboratory equipment — Including ovens and furnaces listed in Bulletin No. 5720 from Blue M Electric Co. **(F-12)**

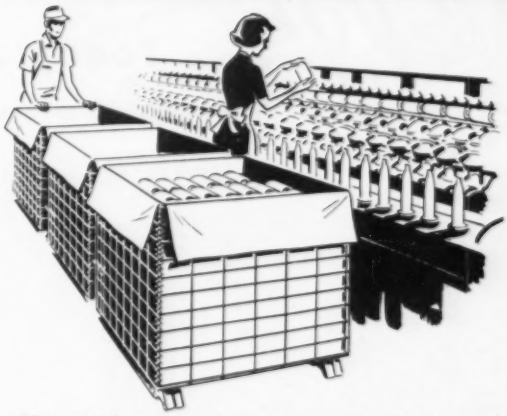
SUPPLIES & CHEMICALS

Carbon and graphite products—Described in 4-p. bulletin from Union Carbide International Co. **(F-13)**

Sulfur dioxide—Properties, specifica-

AMERICAN THREAD
enjoys these
CARGOTAINER®
benefits...

- Increased storage space
- Better handling of 25 tons of yarn per day
- Integration of materials handling into production
- Fewer accidents—held to minimum
- Reduced damage to yarn
- Economical inter-plant yarn shipments
- Lower labor costs



We make Cargotainers in the proper size and capacity for your materials handling and storage operations.

All Cargotainers can be folded and stacked for storage when not in use.

From the time gray yarn is unloaded to its final shipment as finished yarn and thread, Cargotainers are used for handling, supplying production line operations, inter-plant transfers and storage. The 4,000 Cargotainers used in this American Thread Company plant have proved to be versatile and economical. Savings in production and storage operations have averaged around $75,000 per year during the 8 years they have been on the job. Thus, the original investment in Cargotainers has been returned many times over.

Equipped with vinyl coated fabric liners, the Cargotainers protect the yarn contents against chaffing, bruising, and other damage, both within the plant and in inter-plant transfers. The ease and simplicity of materials handling with Cargotainers minimize accidents.

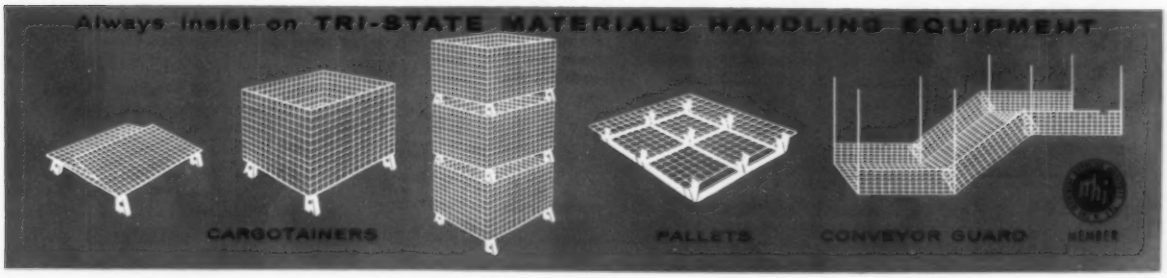
Why not let a Tri-State Sales Engineer cooperate with you in the selection of the right model and capacity Cargotainers for your operations? There is no obligation for this service.

Full details on request

CARGOTAINER DIVISION

TRI-STATE ENGINEERING COMPANY
335 W. Beau Street • Washington, Pennsylvania

Always insist on TRI-STATE MATERIALS HANDLING EQUIPMENT



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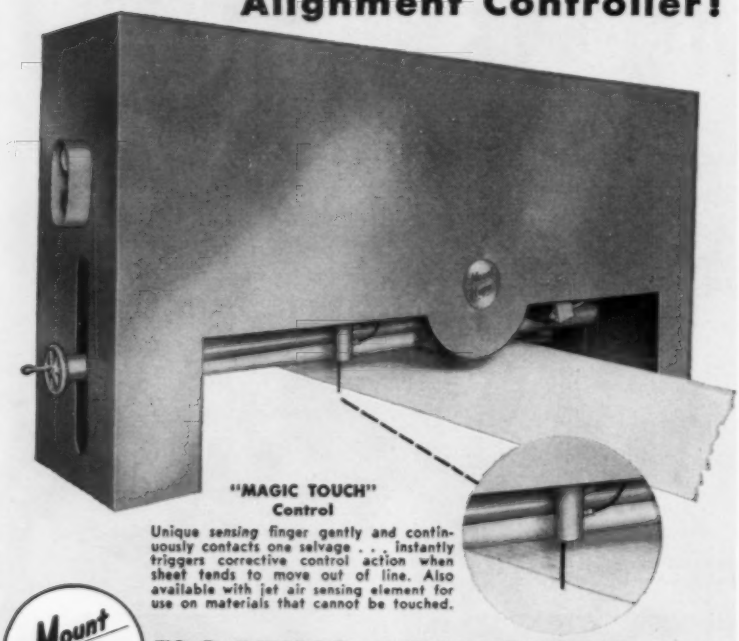
NEW!... Today's Most Accurate Lateral Alignment Controller!



"MAGIC TOUCH" Control

Unique *sensing* finger gently and continuously contacts one selvage . . . instantly triggers corrective control action when sheet tends to move out of line. Also available with jet air sensing element for use on materials that cannot be touched.

Mount Hope **FLOATING ROLL GUIDE**

Corrects with Split-Second Precision any tendency of moving cloth, paper, plastic film or sheet to run out of alignment.

Automatically Guides without Nipping through "swing action" of *separated* rolls . . . keeps material at right angles to rolls.

Reduces Seconds caused by marred selvages, displaced warp threads, damaged nap, or distorted edges.

Builds Square-Edged Rolls that provide closer register in printing, less trim waste, smoother all-around processing.

Now you can be sure of *smooth*, automatic control of lateral alignment within thousandths of an inch! The new Mount Hope Floating Roll Guide provides the most positive guiding action that you can apply to textiles, paper, foil, and plastic film or sheet. This compact, self-contained unit installs easily wherever needed on continuous or batch-type machines. Guides gently without nipping, jerking, pulling or stretching. Provides clean, oil-free mechanical operation. Best way to keep *your* production "in line." For complete details, mail coupons for Free Illustrated Bulletin.

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MACHINERY COMPANY
50 Fifth Street, Taunton, Mass.
PLANTS AT TAUNTON, MASS., and CHARLOTTE, N.C.

MAIL COUPON NOW!

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Taunton, Massachusetts

Please send me Free Bulletin describing the Floating Roll Guide.

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NEW LITERATURE Continued

tions, uses, and handling procedures listed in 15-p. booklet from Ansul Chemical Co. (F-14)

Wool—Evaluating, testing, and sampling discussed in publication from U. S. Dept. of Agriculture. (F-15)

Dynel fiber—Properties, uses, and care described in 16-p. booklet from Union Carbide International Co. (F-16)

Insulation compounds—Of Plaskon plastics are described in folders from Barret Div., Allied Chemical & Dye Corp. (F-17)

Polyether—Flexible foams with a summary of the properties and performance of the resulting products included in Bulletin No. 11058 from National Aniline Div., Allied Chemical & Dye Corp. (F-18)

Colloidal lubricant—For application to man-made fibers to increase yarn strength and weaving efficiency described in folder from Harry Miller Corp. (F-19)

Protective coatings—A 36-p. manual, No. 257, includes sections on surface preparation, use of primers, and finish coatings. Rust-Oleum Corp. (F-20)

Naphthol—Application and uses of Naphthol AS-BN described in circular from General Dyestuff Co. (F-21)

Textile chemicals—Catalog contains descriptions of over 100 specialties used in the processing of textiles, paper, and leather from Emkay Chemical Co. (F-22)

Organic chemicals—Booklet RF-6136 includes physical-property data of more than 350 organic chemicals from Union Carbide International Co. (F-23)

ENGINEERING & MAINTENANCE

Sampling valve—Bulletin J-90 describes sliding-gate sampling valve from Jordan Industrial Sales Div., OPW Corp. (F-24)

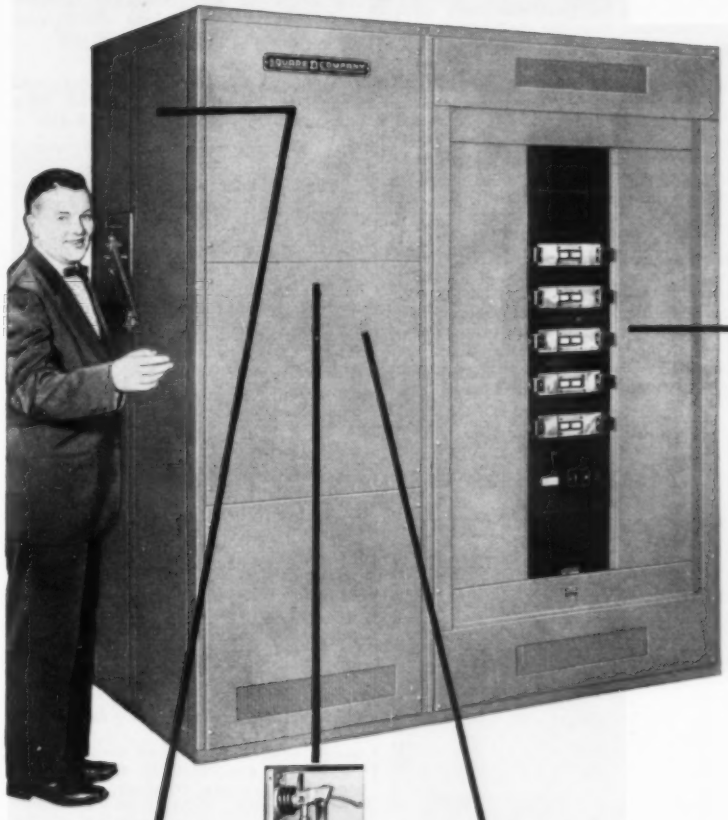
Fire protection—Service plan outlined in brochure from Ansul Chemical Co. (F-25)

Tubing—Pipe and welding fittings are listed in Booklet TB-417 from Babcock & Wilcox Co. (F-26)

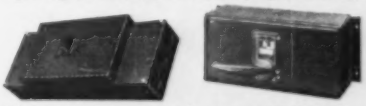
Pipe fittings—Of stainless steel are described in booklet from Vanton Pump & Equipment Corp. (F-27)

Electrode—Directory tells how to

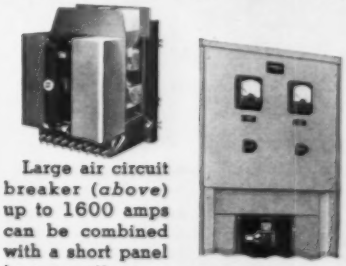
SQUARE D's NEW Unit Substation IN POWER-STYLE CONSTRUCTION



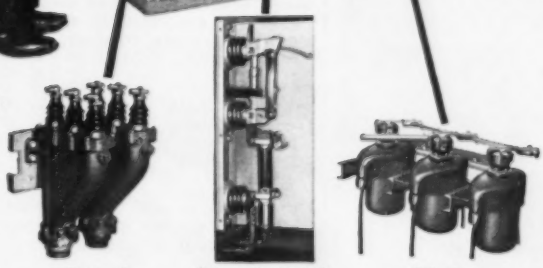
Designed to match Square D's Power-Style switchboards and control centers, these new Unit Substations meet NEMA, ASA, and AIEE standards. Available from 75 to 500 KVA; in primary voltages up to 4800V; secondary up to 600V.



Molded case circuit breakers (*left*) up to 800 amperes and QMB Saflex fusible switches (*right*) up to 600 amperes are available in compact panel construction.

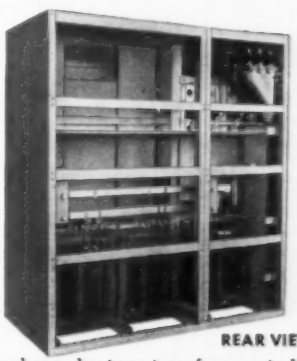


Large air circuit breaker (*above*) up to 1600 amps can be combined with a short panel in one section.



Pothead | Interrupter Switch | Cutout

Potheads, fused or unfused load break air-interrupter switches and fused or unfused oil-filled cutouts are available. Air-interrupter switches and cutouts are easily accessible from front of Substation.



REAR VIEW

3 single phase, dry-type transformers individually mounted on base in ventilated enclosure—heating and vibration held to a minimum. Transformers easily accessible for maintenance and inspection. When no air circuit breaker or metering equipment is used, entire area at top left is available for pull box.

NOW...EC&M PRODUCTS ARE A PART OF THE SQUARE D LINE!

SQUARE D COMPANY

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NOELTING

Faultless Casters

assure continuous production . . . at decreased costs

Keeping the spinning machinery continuously supplied with work materials, for most profitable output, requires trouble-free trucks. 64,000 spindles in one mill hit peak efficiency with dependable, smooth running doff-boxes and buggies mounted on Faultless Textile Casters. Faultless 504-4TG Rigid Plate and 1104-4TG Double Ball Bearing Swivel Plate Casters assure fast, low-cost action. Snug fitting, nonbinding Thread Guards, especially designed for the textile industry, keep lint out of bearings and prevent string winding around axle bolts—thus avoiding costly delays, while threads and ravelings are removed.

Ask Your Distributor

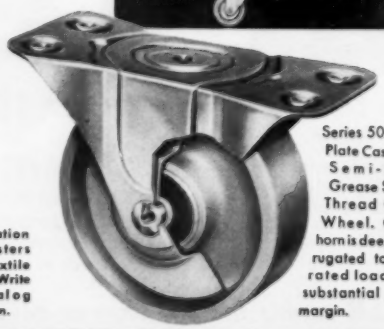
Your nearby Faultless Industrial Distributor maintains a substantial inventory of Faultless Casters for immediate delivery. He and one of the strategically located Faultless Sales Engineers are available to work with you on every handling problem in your mill. Both are listed in the phone book Yellow Pages under "Casters," beneath the Faultless heading.

Series 1100 Swivel Plate Caster with Semi-Steel Grease Sealed Wheel with Thread Guards. Note two full rows of hardened Ball Bearings in swivel head. Grease Seal in wheel hub keeps lubricant in—foreign matter out. New style thread guards keep lint out of bearings, string from winding around axle.

NOELTING Faultless Casters

Faultless castered equipment can lead the way to reduced costs and increased production in *your own mill*. Casters for light, medium, heavy and special duties are included in the extensive Faultless line. Faultless wheels for every type floor and load, as well as for special temperature and chemical conditions, are available.

Complete information on Faultless Casters and Wheels for textile use is available. Write asking for Catalog 8157, no obligation.



Series 500 Rigid Plate Caster with Semi-Steel Grease Sealed, Thread Guard Wheel. Caster horn is deeply corrugated to carry rated loads with substantial safety margin.

Faultless Caster Corporation

EVANSVILLE 7, INDIANA

Offices in Atlanta, Boston, Buffalo, Chicago, Cleveland, Dallas, Detroit, Greenville, S. C., Grand Rapids, High Point, Indianapolis, Los Angeles, New Orleans, New York, Philadelphia, Pittsburgh, Seattle, St. Louis, Washington, D.C., Canada: Toronto, Ontario

select the best electrode for any welding job. Lincoln Electric Co. **(F-28)**

Rubberized abrasive—For deburring, smoothing, and polishing operations are covered in a catalog from Cratex Mfg. Co. **(F-29)**

Selector switches—Complete standard line of Micro Switch rotary selector switches covered in data sheet from Micro Switch. **(F-30)**

Stationary tachometers—Listed and described in Bulletin No. 795 from Herman H. Sticht Co., Inc. **(F-31)**

Cylinder actuators—Are described and more than 20 applications are illustrated in Bulletin B-50-3 issued by Conoflow Corp. **(F-32)**

Hot-rolled steel—Buyer's guide to bars, structurals, plates, sheets, and strips in Bulletin 11-2 from Joseph T. Ryerson & Son, Inc. **(F-33)**

Wood tanks—Reference and data handbook on wood tanks available from National Wood Tank Institute. **(F-34)**

Electrical switches—And other equipment and components for low-voltage distribution listed in Catalog GEC-1032B from Distribution Unit, General Electric Co. **(F-35)**

Thermometers—For industrial recording and control listed and described in Catalog C-60-2 from Minneapolis-Honeywell Regulator Co. **(F-36)**

GENERAL

Steel lockers—A line of steel storage lockers is described in Catalog B-60 from Penco Metal Products Div., Alan Wood Steel Co. **(F-37)**

Industrial truck—Comparison table of truck operating costs using LP gas, gasoline, and batteries from Elwell-Parker Electric Co. **(F-38)**

Case histories—Of materials-handling problems outlined in bulletins from Lewis-Shepard Products, Inc. **(F-39)**

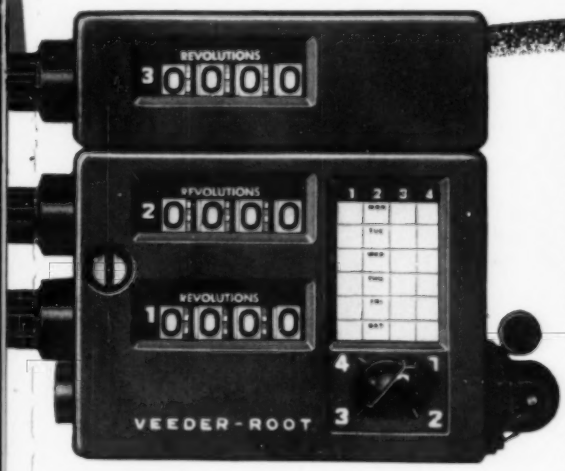
Dial scale—Listing and specifications in illustrated catalog from Howe Scale Co. **(F-40)**

Handling drums—Kegs, rolls, and other cylindrical objects with an industrial truck attachment described in bulletin from Hyster Co. **(F-41)**

Floor surfacing—Material with tenacity and bonding strength 40 times greater than concrete described in 8-p. booklet from Master Mechanics Co. **(F-42)**

Industrial truck—High free-lift acces-

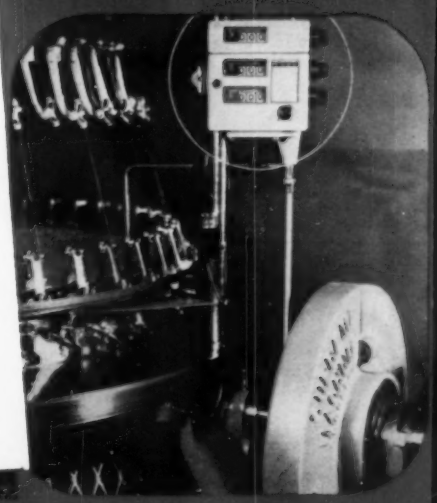
In KNITTING
(as in Weaving and Spinning)
you have to COUNT
to get Accurate
COUNTROL of
Production and Costs



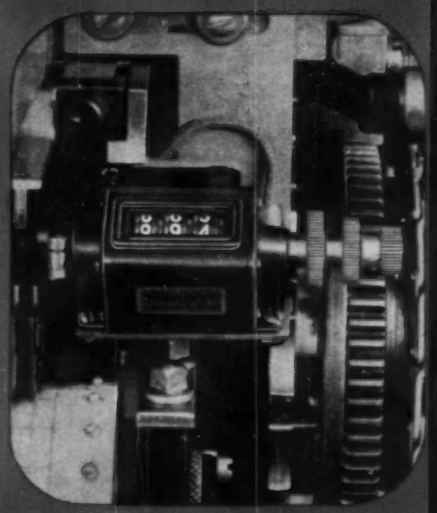
3-Shift Revolution Counter.

Every knitting machine . . . in fact, every process in every knitting mill . . . needs to be under a modern system of Veeder-Root *Countrol*. This system can be shaped to your own needs . . . so you will have a continuous, up-to-the-minute check on production scheduling . . . costs . . . quality . . . lengths . . . over-runs . . . shortages . . . and any other facts in figures you may need.

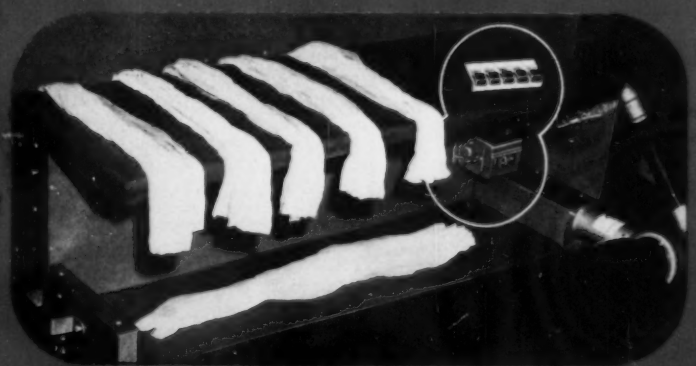
Remember, paperwork doesn't mean a thing, *unless you have accurate Countrol*. And you can count on Veeder-Root to help you in every possible way. Write:



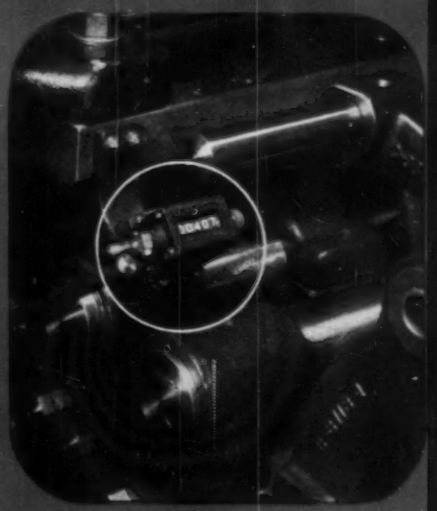
3-shift Revolution Counter on Supreme Knitting Machine.



Small Subtractive Predetermining Counter on Philadelphia Jacquard Knitting Machine.



Vary Tally and Large-Figure Hosiery Dozens Counter on Specialty Mfg. Company's "Inspectomatic" Table.



Small Reset Ratchet Counter on Textile Machine Works' full-fashioned hosiery machine.

VEEDER-ROOT

"The Name that Counts"

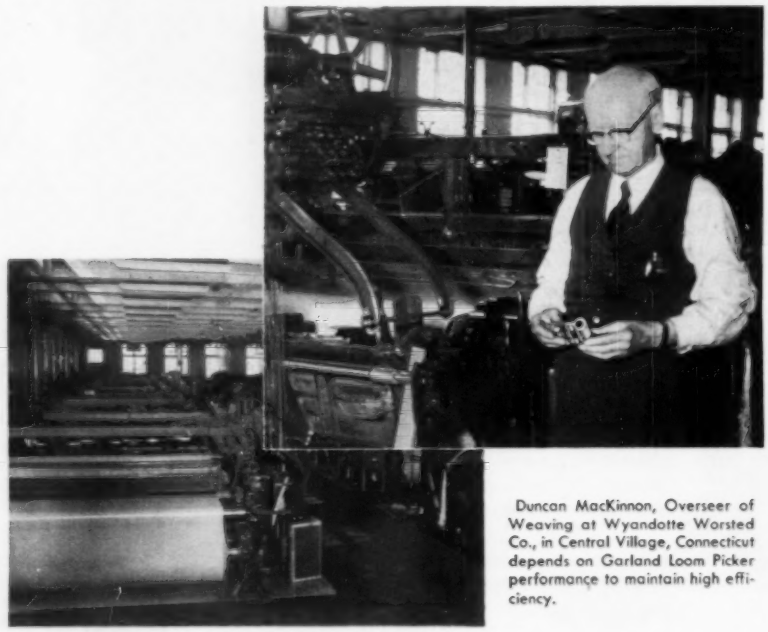
Hartford, Conn. • Greenville, S. C. • Chicago • New York • Los Angeles
San Francisco • Montreal • Offices and Agents in Principal Cities

TAKE A TIP...

FROM MEN WHO KNOW LOOMS

96% EFFICIENCY at Wyandotte Worsted Co. with

GARLAND LOOM PICKERS



Duncan MacKinnon, Overseer of Weaving at Wyandotte Worsted Co., in Central Village, Connecticut depends on Garland Loom Picker performance to maintain high efficiency.

The 48 loom Wyandotte Worsted Company consistently turns in reports of 90% to 96% efficiency, making it one of the nation's most efficient mills. Modern Crompton-Knowles 3A looms equipped with Garland pickers make this amazing record possible.

Wyandotte is typical of many mills which depend on Garland rawhide pickers, sponge leather bunters, rod lubricant with applicator and hair-on-loom leathers.

Men like Wyandotte's Duncan MacKinnon choose Garland pickers because reinforced stick hole gives longer service . . . picker head is stronger, heavier . . . spindle hole is improved . . . and they are pressure molded from water Buffalo hide, the strongest material available, anywhere.

Write for complete information on Garland textile products

Garland MANUFACTURING CO.

Manufacturers of RAWHIDE LOOM PICKERS • SPONGE LEATHER BUNTERS • RAWHIDE HAMMERS AND MALLETS

50 WATER STREET • SACO • MAINE

NEW LITERATURE Continued

sory described in bulletin from Yale & Towne Mfg. Co. (F-43)

Fork truck—A 3,000-lb.-capacity electric-powered fork truck described in folder from Elwell-Parker Electric Co. (F-44)

Materials management—Of repairs and maintenance supplies outlined in booklet from Remington Rand Div., Sperry Rand Corp. (F-45)

Lift tables—How they solve problems of lifting, feeding, and work positioning outlined in booklet from Southworth Machine Co. (F-46)

Building estimating guide—Available from L. Sonneborn Sons, Inc. (F-47)

Floor maintenance—Equipment and supplies listed in bulletin from Finnell System, Inc. (F-48)

Stepladders—With safe pyramid design for business and industrial use described in brochure from Ballymore Co. (F-49)

Steel strapping—Case histories on the application of steel strapping available from The Stanley Works. (F-50)

Textile World

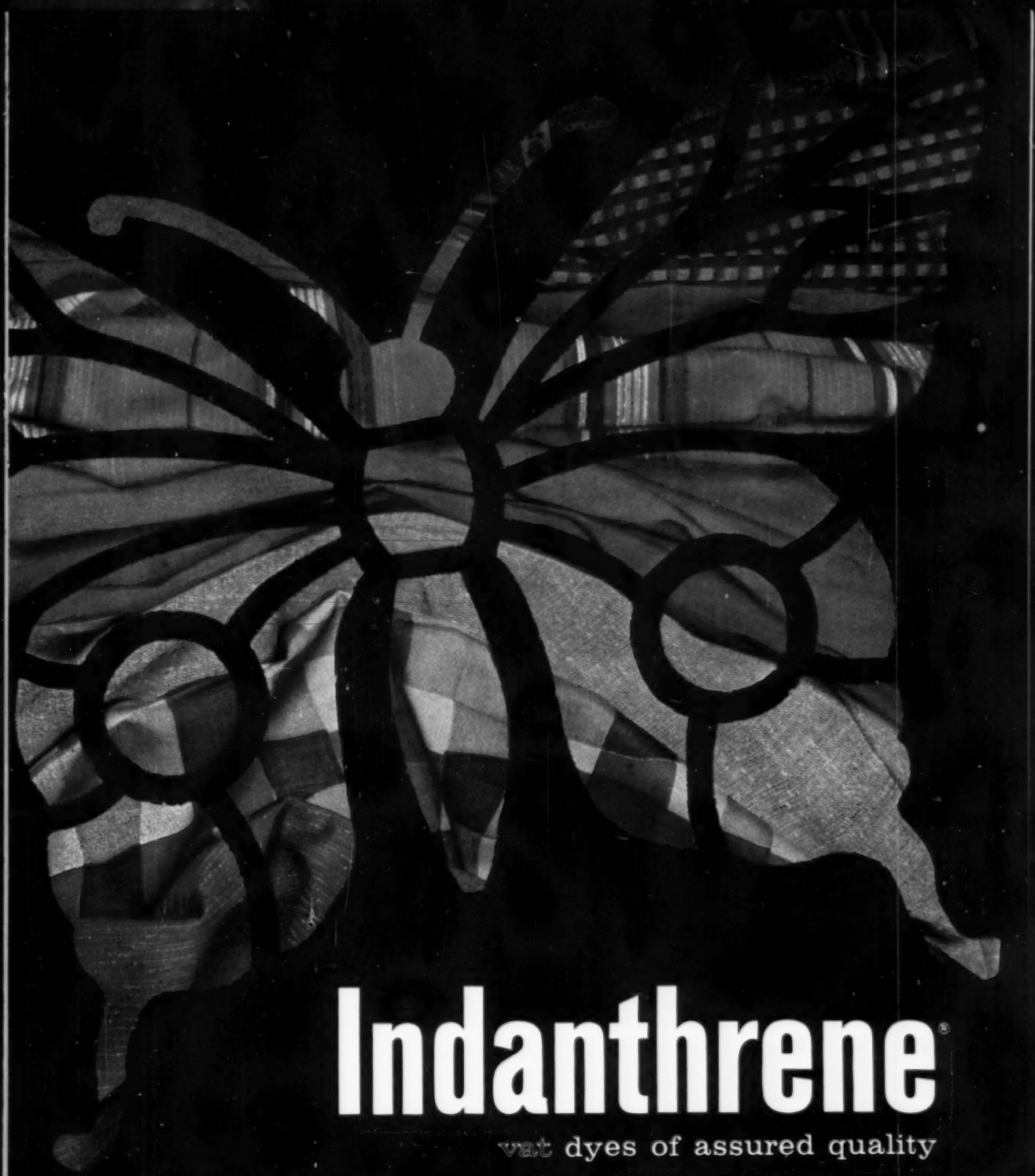
BOOK REVIEWS

TECHNOLOGICAL RESEARCH ON COTTON IN INDIA, by C. Nanjundayya; Technological Laboratory, Matunga, Bombay 19, India; 205 pages, Rs 3.

Applied research on the production of cotton and the textiles made from it is very thoroughly reported in this work.

Work with the cotton breeder to develop better cottons is supplemented by reports on actual mill processing of the fiber. Every angle of cotton-yarn production has been investigated with an eye to producing a more spinnable fiber at less cost.

Utilization of waste to best advantage is also reported in the book. The many investigations involving fiber nature, effects of processing, and others are too detailed for a review. They illustrate the intense effort being put forth in India to produce a superior product from local materials and manpower.



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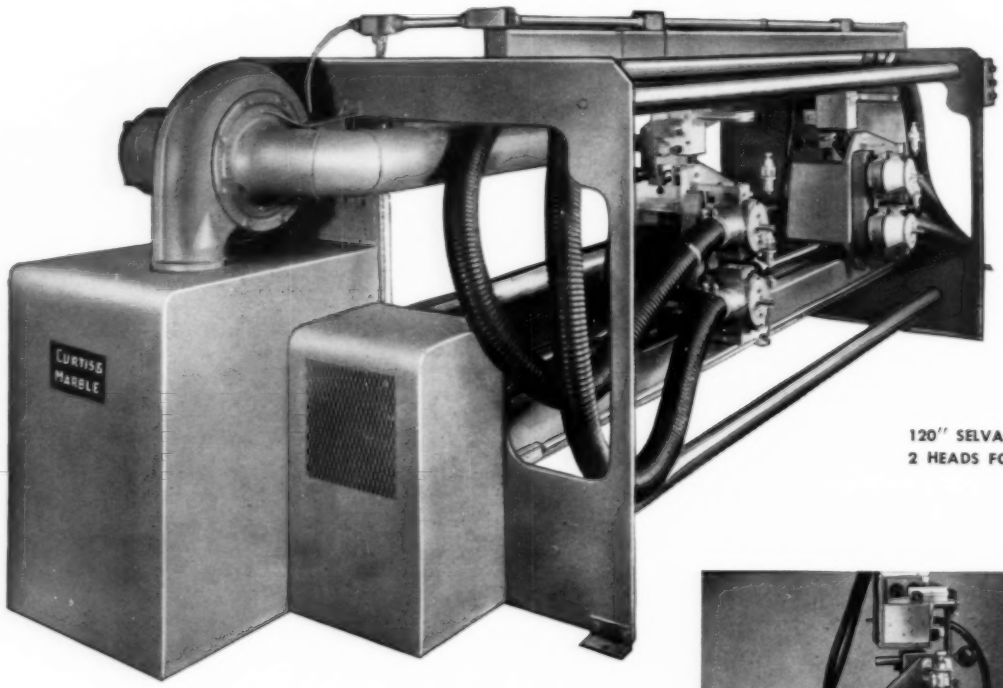
MEMBER SAT · TDI INSTITUTE · INDANTHRENE SAT SITS A REGISTERED TRADEMARK OF THE GENERAL ANILINE & FILM CORPORATION AND IS REGISTERED IN THE UNITED STATES UNDER THE TRADEMARK CONVENTION

Trim and remove hanging threads with this

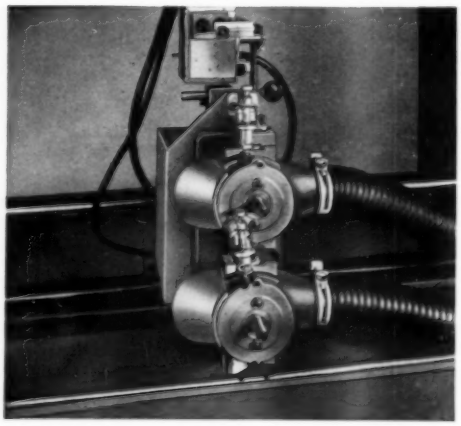
VSS SELVAGE TRIMMER

It quickly pays for itself by ending costly hand labor!



120" SELVAGE TRIMMER WITH
2 HEADS FOR EACH SELVAGE

Processing all weights of fabrics from organdy to blankets, this new high speed Selvage Trimmer also cleans metalized and fiberglas cloth as well as softer fabrics. Handles up to 36" diameter rolls and widths up to 120". Regardless of selvage movement due to width variations caused by uneven winding or tension change, Trimming Heads are instantly guided to selvage by unit positively controlled by photo-electric sensing device operating on the electric eye principle.



Two way adjustable photo-electric sensing device is shown above the two heavy duty vertical shearing heads for trimming one selvage.

CURTIS & MARBLE MACHINE CO.

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CONTINUED FROM PAGE 97

Third, the supervisor should inform the employee about company policies, practices, and rules that he should know to do his job correctly and that he should understand to become a cooperative, enthusiastic member of the organization. This information involves more than the well-publicized practices and rules that may be in writing; it should also cover practices and rules that have been established in the department over the years that the employee should know if he is to fit in comfortably and quickly.

Be Sure To Follow Up

In the process of on-the-job training, there is possibly no single thing more important than follow-up. People who are new to a job are naturally insecure, are concerned about how well they may succeed, and are wondering what kind of treatment they will receive. In this frame of mind, short of confidence in their ability, they will not be able to grasp immediately all there is to know about their new responsibilities.

They may have to absorb just a little at a time so that step by step they begin to acquire the understanding and skill needed. In these circumstances, you have to follow up frequently to see if they are performing each element of the job correctly and then help them out wherever they might have gone astray.

There is another compelling reason for consistent follow-up. In most organized companies, the union contract provides for a probationary period to enable supervisors to evaluate how new employees are coming along. Many unorganized companies also have established a probationary period for the same purpose. During this interval the new employee is not recognized as a regular part of the work force.

This probation period is the ideal time to determine if the employee is catching on satisfactorly and to measure his progress to see if he will make the grade. The supervisor can evaluate whether the new person is likely to fit into the organization, whether he has the potential to move on to more responsible jobs, whether he is dependable in attendance—in short, whether he will make a good permanent employee. If the probability is against his meeting company standards, surely this is the best time, both in the interest of the company and the employee, to terminate his employment.

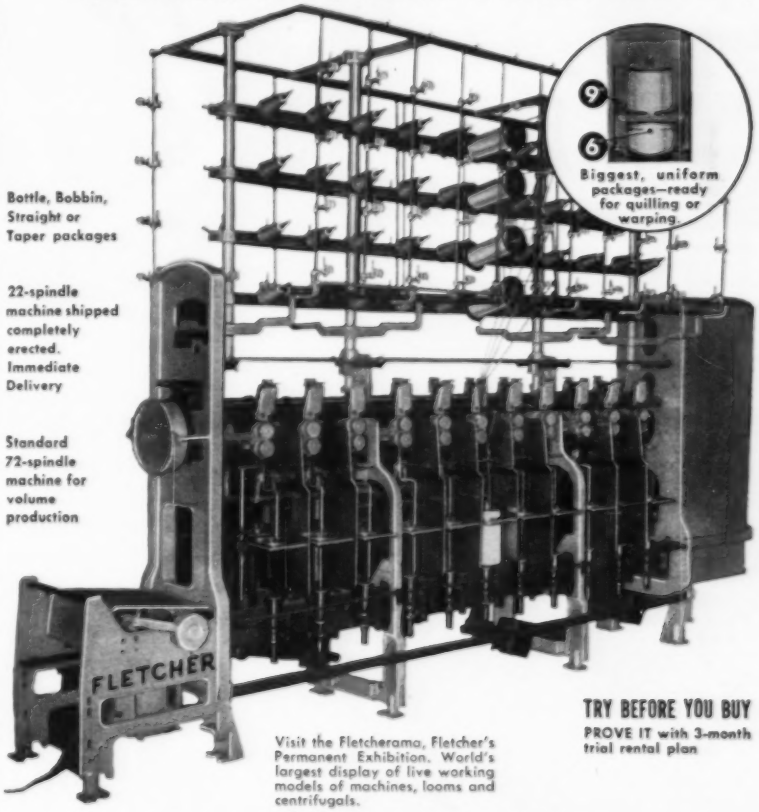
The careful follow-up during the probationary period should be obvious; but in the press of other duties, it occasionally is overlooked, and problems are thus created by neglect and oversight.

Profits in today's markets are hard to come by. In today's economic climate, every supervisor must give special attention to costs. There are opportunities for cost reduction if supervisors will devote their know-how to effective training preceded by careful selection. Certainly it is a good time to reappraise our performance in this key area and to step up our efforts if they now fall short of our maximum capability.

BIG 5 POUND PACKAGE

FLETCHER DUPLEX TWISTER

5 POUNDS OF CONTINUOUS TWISTED AND DOUBLED HIGH QUALITY WOOLEN-WORSTED, TEXTURED, SYNTHETIC AND COTTON YARNS.


9
6
Biggest, uniform packages—ready for quilling or warping.
Bottle, Bobbin, Straight or Taper packages
22-spindle machine shipped completely erected. Immediate Delivery
Standard 72-spindle machine for volume production
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TRY BEFORE YOU BUY
PROVE IT with 3-month trial rental plan

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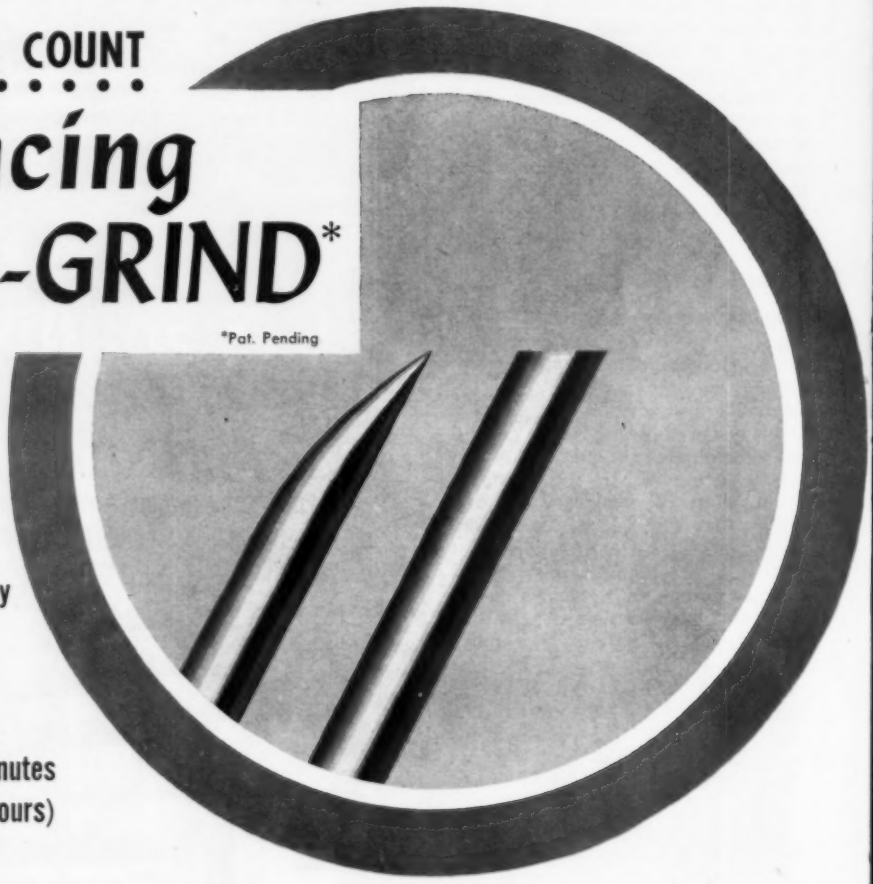
MANUFACTURERS OF QUALITY CARD CLOTHING SINCE 1892

REDUCE YOUR NEP COUNT

Announcing MICR-O-GRIND*

*Pat. Pending



MILL TESTS SHOW:

Nep count reduced 40%

Blending improved substantially

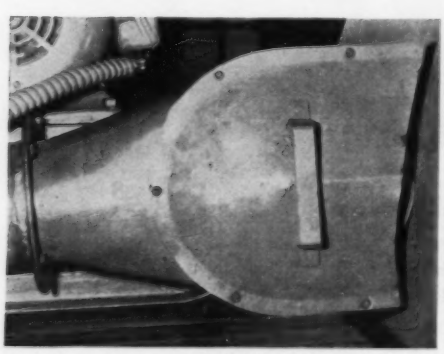
Yarn strength up 10%

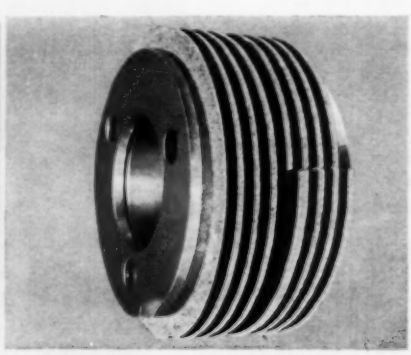
Grinding 80% less frequent

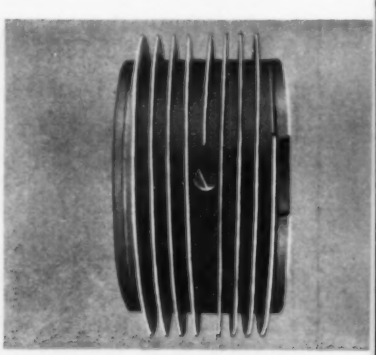
Grinding time less than 30 minutes (normal 6-8 hours)

Stripping 65% less frequent

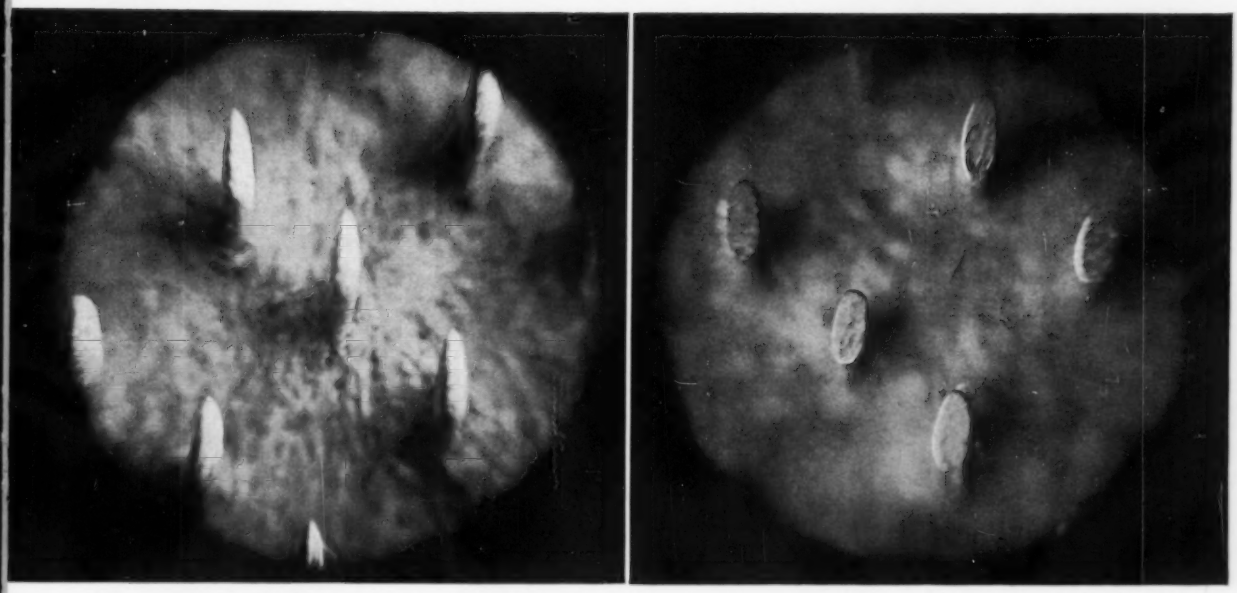
NEW AND EXCLUSIVE METHOD of putting an extra sharp needle point on the staples of card clothing. MICR-O-GRIND is especially suited for cotton mills and for woolen mills with difficult blends or noily stock.







Grinding discs are spiraled to take off the heel of each tooth. MICR-O-GRIND head fits your conventional grinding shaft.



Note needle point from MICR-O-GRIND (left) compared with conventional flat point (right). Extra sharp MICR-O-GRIND points card out the neps and reduce the nep count as much as 40% on cotton. Sharper points also allow stock to release itself —hence less loading—and also give greatly improved carding action. Stripping of cotton cards only once a shift—on woolen cards as little as once a month.

HOW IT WORKS

Exclusive new MICR-O-GRIND head has spiraled abrasive discs to take off the heel of the wire. This leaves a needle-like point, long recognized as ideal for card clothing.

Never before has this ideal been attained. Conventional grinding invariably leaves a flat point because no way was known to grind the teeth to a perfect point.

IMPROVED QUALITY

The needle point of the teeth holds the fibres long enough to be thoroughly carded and yet does not tear the fibres. This provides a more gentle combing action for increased yarn strength, better blending and reduces neps by as much as 40% in cotton carding.

Needle point is smooth enough to release the stock easily, yet the fine serrations (as seen under a microscope) will not let the fibres escape without being carded. This also means that there is less beating action at the doffer comb as the web flows more readily off the card.

REDUCED COSTS

through reduced Down Time for grinding and stripping. MICR-O-GRIND clothing is very inexpensive—only 5% more. The MICR-O-GRIND needle point can be applied to any type of card clothing—the only difference is the point. In a cotton mill, you can get your standard 100's, 110's, etc., in either CCWC, CWC or rubberfaced foundation—also any woolen clothing.

BENJAMIN BOOTH COMPANY

ALLEGHENY & JANNEY STS., PHILA. 34, PA.

Booth

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CONTROLLED MOTOR HEAT

CONTINUED FROM PAGE 59

When a section man or mill electrician inspects the motor, he closes a damper in this duct entrance just above the floor level to cut off the vacuum action. Large foreign objects that might get into the housing are kept out of the discharge duct by a bar-grill guard.

One advantage found at Springs in running the ducts under the floor instead of overhead is that there's no interference with overhead cleaning systems that have long nozzles; one such system is being used on one frame.

Ducts from all lines of spinning frames in each room join and are exhausted into the air-washing room of a new air-washing system. Here the air from spinning-frame motors is washed if it's needed for heat. Or the exhaust air is discharged outside the mill at the top of the penthouse if it isn't needed for interior heating.

Automatic dampers control the flow of the returned air. For winter heating, steam is used along with the exhausted spinning-frame motor air.

Spinning-frame motors are totally enclosed, fan-cooled, 15-hp. motors. At present, all motor capacity isn't being used but is available for possible future increased loads; about 10 hp. are being used at present.

Many Advantages Are Promised

Motors in the air-cooled housing are cool enough for your hand to be placed on them at any time.

Springs' Master Mechanic C. Y. Bumgardner thinks that there's a possibility motor life will be increased by the cool-running condition.

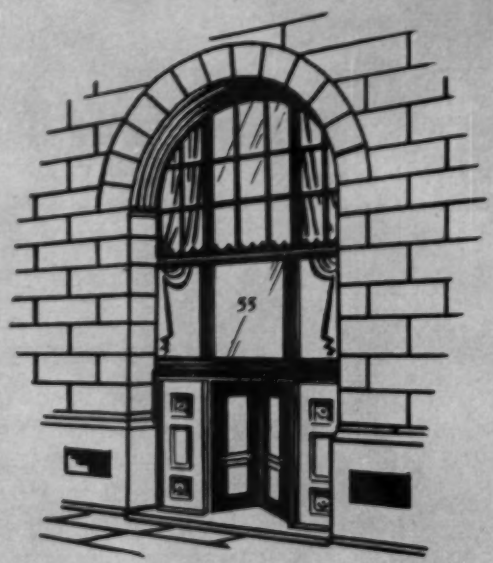
Motors have double grounds, one in the conduit and one physical ground from the frame to the motor.

The frames are driven through variable-speed pulleys with 2-to-1 ratio; cylinder speed is variable from 850 to 1,700 rpm.

If calculated engineering data prove out as expected by management men, there will be definite savings from heating in winter and cooling in summer.

Our service is tailored to provide all the working capital any qualified client needs, without increased borrowing, diluting profits or interfering with management.

Information available for any manufacturer or distributor with $500,000 or more annual sales.



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COTTON-YARN QUALITY

CONTINUED FROM PAGE 93

If only one of the three major factors—size, variation, or imperfections—fails to come up to standard, yarn quality is impaired. For example, two lots of 18s combed yarn were tested and all quality factors were found to be approximately the same except long-term variation. One yarn had a variation of 21.84%, the other 11.55%.

This one quality difference caused a decided change in the appearance of a knitted fabric.

In knitting, where up to 50 or 60 cones are fed into the same number of sections in one round, long-term variation appears to have the same effect as short-term variation because each of the sections comes from different cones and only a very short length is knitted in each round.

Knowing the quality level does not improve it. Action on the part of management and line supervisors is essential, and we must guide management wherever possible by separating quality into its components.

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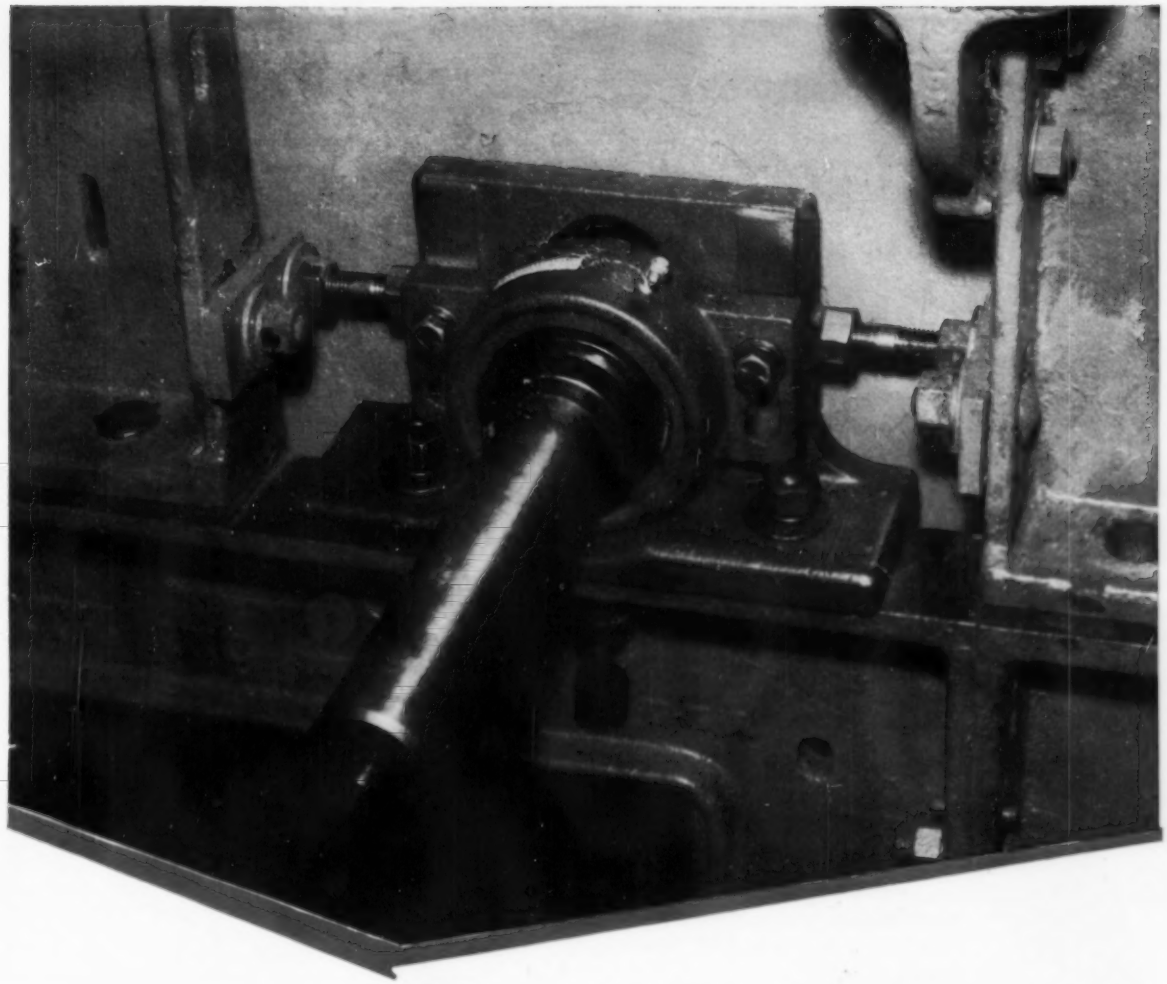

Dixie Bearings, Inc.

designs and produces anti-friction bearing conversion units for textile machinery

This sliding, take-up unit is installed on a Garnett Doffer box shaft at Chatham Manufacturing Company, Elkin, North Carolina. It illustrates the clean, practical fixtures our bearing engineers designed to hold the bearings best suited to carry the shaft with a minimum of maintenance and power consumption.

Chatham Manufacturing Company has now installed our conversion units on other production equipment. Success of these installations in cutting operating costs, improving quality and increasing production is more than satisfactory.

Ask a DIXIE bearing engineer to survey your bearing requirements and recommend anti-friction bearing conversions wherever possible. It's a service we're glad to perform at no cost to you. Call the DIXIE branch nearest you NOW!

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NEPOTOMETER

CONTINUED FROM PAGE 92

standards, the production of a constant-weight web in the test was believed to be necessary. The possibility of controlling web weight by Micronaire reading or upper-half-mean length, or a combination of these, appears promising.

Two simple equations have been derived for determining the specimen weight to use for a fixed web weight, one based on the Micronaire reading and the other on upper-half-mean length.

The formulas are:

1. Specimen weight (grains) = 30 − (2 × Micronaire reading)
2. Specimen weight (grains) = 30 (1 + upper-half-mean length)

Simple Measurements Are Used

Statistical analysis of the data on the test cottons indicated that measurements such as Micronaire reading or upper-half-mean length account for about 70% of the variance in the log. The special need for an instrument, such as the Nepotometer, is for detecting those cottons with an anomalous behavior that might prove troublesome in processing.

It also was shown that neppiness standards following a regular progression can be obtained from the present photographic grades by adding another grade between the present Grades 1 and 2.

Although no positive recommendations for change in the original test procedure are being made at this time, it is hoped that users of the Nepotometer will consider having a fixed-web weight and will try out the formulas proposed for obtaining this end.

NEWS ABOUT MILLS

CONTINUED FROM PAGE 15

fibers, the dyeing of wool and other fibers, and the dyeing of yarns and carpets. The company is also building an addition to the water-pumping station, a complete filter plant, an addition to the steam power plant, and an industrial-waste-treatment plant.

Morgan Cotton Mills, Laurel Hill, N. C., has bought one unit of McColl Mfg. Co., McColl, N. C., a division of William L. Barrell Co., New York, N. Y.

CONTINUED ON PAGE 146

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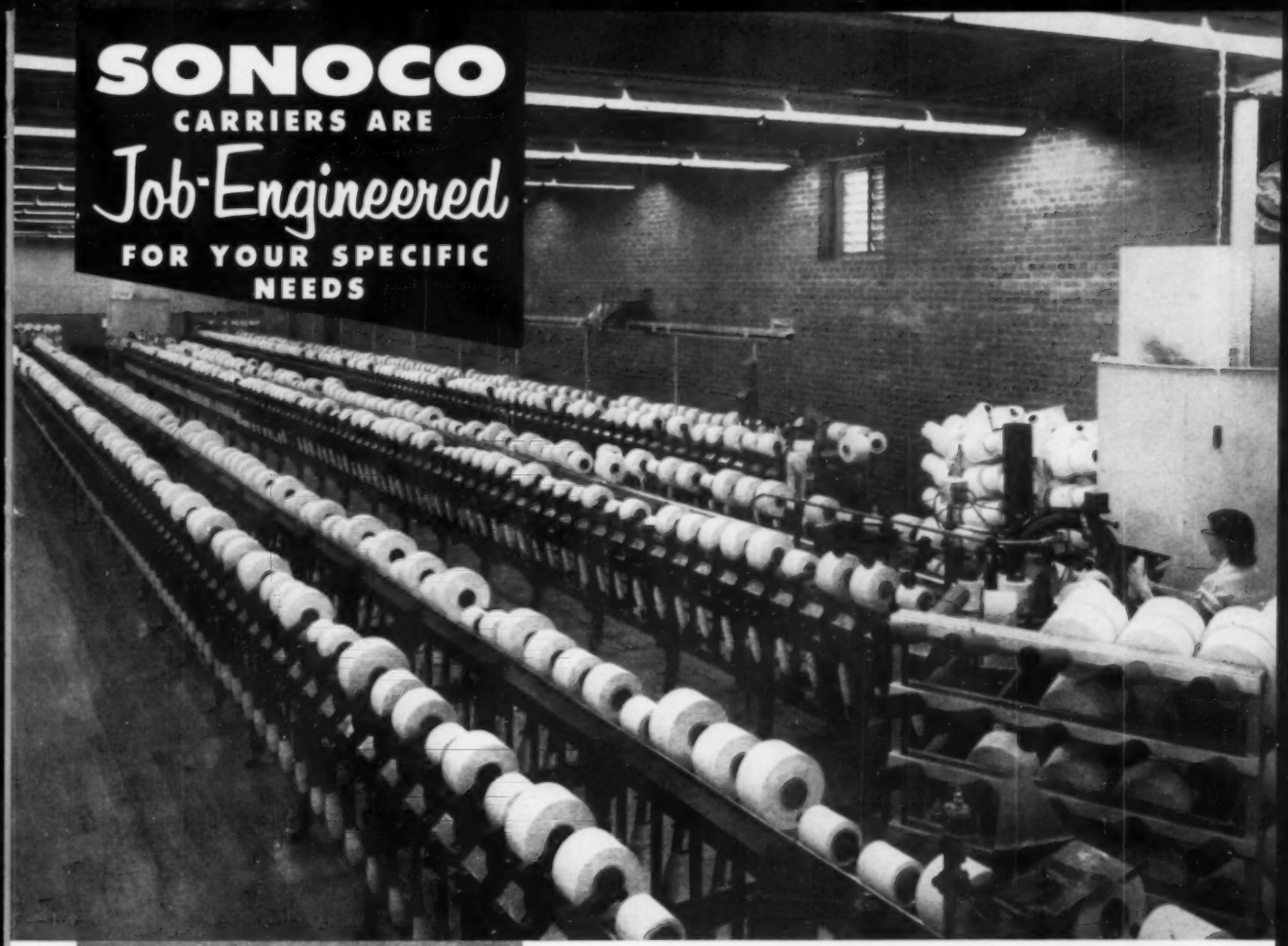
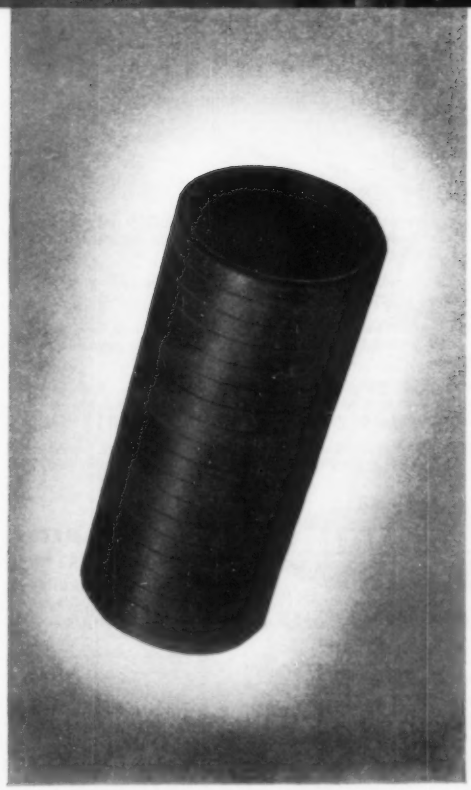
SONOCO
CARRIERS ARE *Job-Engineered* FOR YOUR SPECIFIC NEEDS



Photo—Courtesy Abbott Winding Machine Co., Inc.



Regardless of the kind of yarn, SONOCO carriers provide perfect foundations for uniformly sound packages . . . trouble-free in high speed use . . . and economical. For nearly 60 years the textile industry has relied on SONOCO to solve their carrier problems . . . and these problems have been solved by SONOCO with "job-engineered" products.

For example, sturdy and economical DUROWELD cheese cores are the result of SONOCO specialization. This type core is essential where repeated use is required. Cores produced by the exclusive DUROWELD process are held to micrometer tolerances, and are accurately balanced to assure perfect performance during winding and take-off. They are made in standard sizes for Abbott Automatic Winders, Barber-Colman Spoolers and Universal Unirail Uptwisters. Special sizes also available.

SONOCO can design and produce a product to conform to your exacting requirements. Let SONOCO experience help you.

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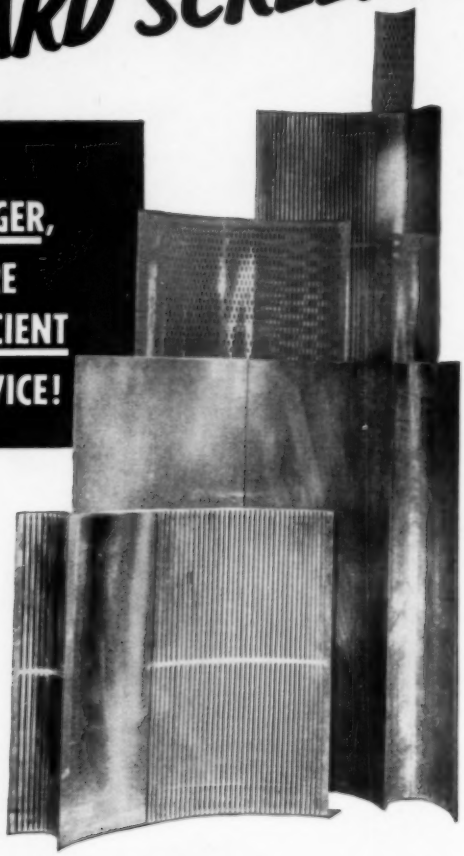
Gastonia

Precision-built CARD SCREENS

for LONGER, MORE EFFICIENT SERVICE!



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GASTONIA standard type rib or perforated Card Screens are cut and assembled on specially designed precision-built jigs.

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Years of skilled practical experience are precision-built into all GASTONIA products.

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A sheet metal works serving textile mills

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Expert reneedling of combs for cottons, worsteds and synthetics.

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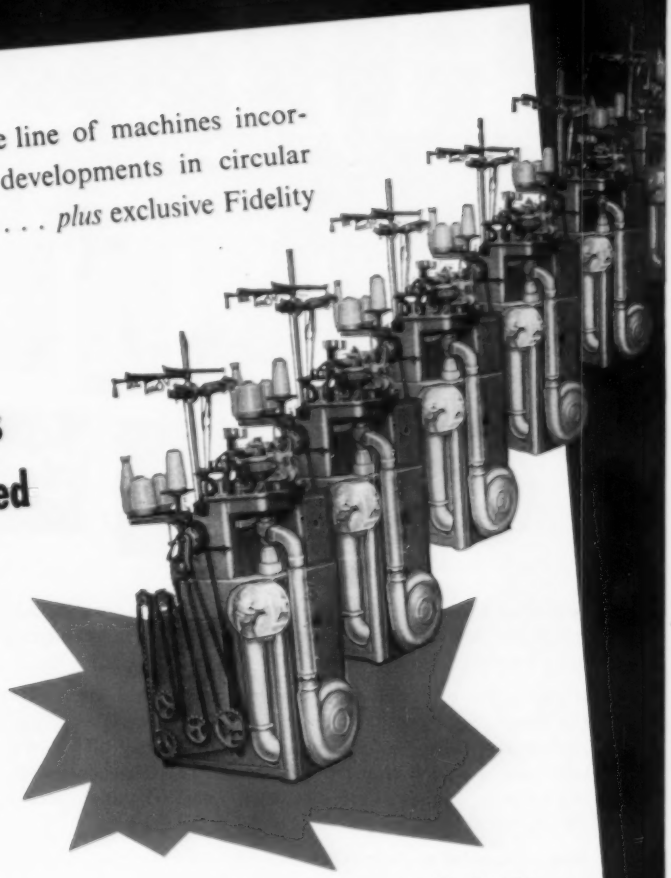
Only Fidelity offers a complete line of machines incorporating *all* the outstanding developments in circular knit hosiery equipment design . . . *plus* exclusive Fidelity electronic control!



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You select the performance features *you* want . . . when you select a Fidelity. See the *complete* Fidelity line in operation at our showrooms . . . or write for stocking samples today.

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Even if you think the travelers you are now using are adequate, it will pay you to consider the advantages of National-Sterling Ring Travelers. Here's why.

If you're like most mill men, you've learned to measure traveler performance in terms of yarn quality and pounds produced. And that's where National-Sterling Travelers pay off! In mill after mill — on job after job — National Travelers consistently deliver more pounds of first class yarn, at higher spindle speeds, with fewer ends down. Why not prove it for yourself?

Make it a point to let an experienced National-Sterling Engineer help you select the *right* travelers for your particular spinning or twisting operation. Write, wire or phone National Ring Traveler Company and Sterling Division, 354 Pine Street, Pawtucket, R. I. Southern Office and Warehouse: P. O. Box 293, Gaffney, S. C.

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NEWS ABOUT MILLS

CONTINUED FROM PAGE 142

Putnam Finishing & Dyeing Corp., Putnam, Conn., has been bought by Herzl Textile Dyers, Inc., Brooklyn, N. Y. It will continue to operate as a division known as Putnam-Herzl Finishing Co. Herzl specializes in finishing all man-made-fiber fabrics.

Scotts Mills, Inc., Uxbridge, Mass., is the new name of the former S. F. Scott & Sons' mill. It has started manufacturing heavy coatings, fleeces, melton cloth, and novelty outerwear fabrics.

Seneca Knitting Mills Co., Seneca Falls, N. Y., has opened a subsidiary, The Finger Lakes Handcraft Co., Inc.

J. P. Stevens & Co., Greensboro, N. C., is selling its yarns directly in the Southern territory. The company had previously sold its yarn exclusively through Moher & Co., Boston, Mass.

LARGE SECTION BEAMS

CONTINUED FROM PAGE 57

tains 2,124 ends on a standard pattern and is 1,650 yds. long. A warp of 18.5s yarn has 2,288 ends and is 2,200 yds. long.

Empty beams in the slasher room and full slashed beams are stored on steel trucks that hold two beams. The full beams are rolled to the weave room and stored on the trucks until they are used.

The empty beams are rolled to the head of the slasher on the trucks, where they are lifted to the slasher with an electric hoist. This hoist also removes the full beams from the slasher.

A tapioca-base size is used at the mill. The size formula is:

170 lbs. of medium-grade tapioca

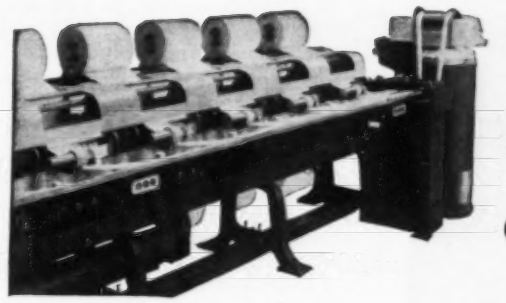
16 lbs. of compound with a wax additive in one material

Finished at 216 gals.

The solution is brought to a boil in ½ hr.; then it is cooked for an additional 1½ hrs. at 210° F., for a total cycle of 2 hrs.

Size is held at 210° F. in the storage kettle and is kept at 208° F. in the size box.

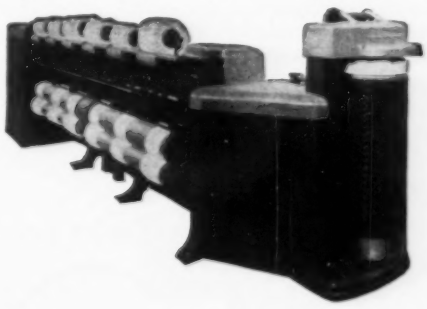
Because mechanical handling is used throughout the slasher room, one man operates the slasher, creels in new section beams, and cooks the size.



the **"HARTFORD"** high production comber.

A six-head machine capable of productions of up to 44 lb./hr. with speeds of only 116 nips/min. and efficiencies of over 90% with waste extraction from 6% low—to 25% high.

Highest comber production per unit of floor area is achieved. Quality is maintained at lower waste extraction.



ATKINSON, HASERICK & CO., INC.
ENGINEERS & AGENTS FOR THE WORLD'S LEADING TEXTILE MACHINERY
FRAMINGHAM, MASS. · CHARLOTTE 2, N. C.
Greenville, S.C. • Phila., Pa. • Bradford, Eng.

PLATT BROS. (SALES) LTD.
OLDHAM, ENGLAND
MARKETING THE TEXTILE MACHINERY MADE IN THE WORKS OF PLATT BROTHERS & CO. LTD. HOWARD & BULLOUGH LTD. DOBSON & BARLOW LTD.

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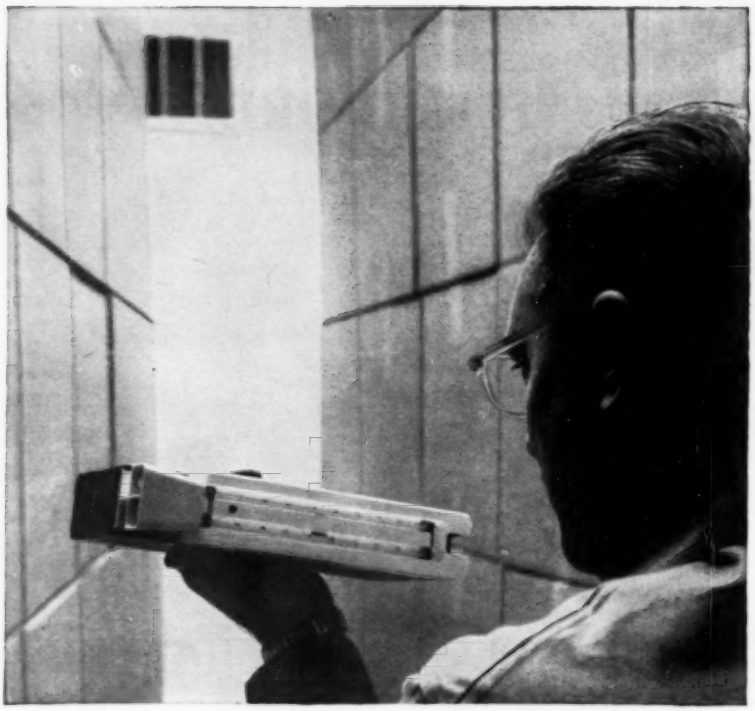


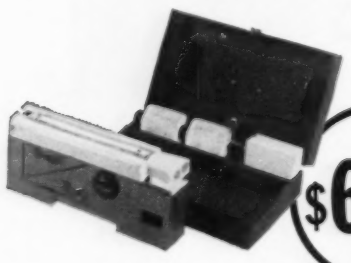
NOW YOU CAN CHECK RELATIVE HUMIDITY ANYWHERE— NO SLINGING OR WHIRLING

This brand-new Bendix-Friez Psychron gives you extremely accurate relative humidity and dew point information with just the flick of a switch. It is a battery-powered portable psychrometer designed and manufactured to meet rigid U. S. Weather Bureau specifications.

Unlike ordinary sling psychrometers, the Bendix* Psychron requires no whirling or special technique to operate. Three standard-size flashlight batteries power a tiny fan that draws air over wet and dry bulb thermometers at a rate exceeding 15 F.P.S. As a result, the Psychron can be safely used in close quarters. It has a special thermal shield to avoid radiation effects for use in bright sunshine and built-in illumination for use in dark or poorly lighted areas.

Order direct from us or through our nearest dealer. For further information write: Bendix-Friez, 1494 Taylor Ave., Baltimore 4, Maryland.

*REG. U.S. PAT. PEND.



$68.50

Price includes metal carrying case, nylon neck strap, psychrometric slide rule, 1-oz. plastic water bottle and instruction book containing humidity and dew point tables.

Friez Instrument DIVISION

Bendix AVIATION CORPORATION

JOB EVALUATION

CONTINUED FROM PAGE 50

It is always wasteful to have mill personnel working below skill; and when manpower is short or mill profits low, the proper use of manpower and skill is particularly important. Work simplification will help reduce such costly waste.

A mill supervisor is judged by visual and tangible proof of productivity. His worth to management is measured in terms of production, operating costs, and apparent morale and industry of employees.

The following information can help supervisors put work simplification to use in their departments for improving methods:

Select the department job to be improved. Consider cost, time, and workload.

Study how it is being done now. Make a flow-process chart, describe each step; apply the symbols.

Question the present method. Use the what, where, when, who, why, and how approach.

Determine actions. Eliminate unnecessary work, combine details when practical, and rearrange tasks for better sequence. Simplify the work through motion-economy essentials.

Solicit worker participation. Never be too busy to find out how to be less busy in the mill.

Like a suggestion system, a work-simplification program is one for improving production, reducing cost, and increasing employee efficiency.

CENTRALIZED LUBRICATION

CONTINUED FROM PAGE 95

do this job, and we simply place the pump directly in the original container we get the oil in.

The oil container is wheeled to a corner of the spinning room, and we hook the pump to the mill's compressed-air line. Excess oil from each control unit is delivered back to the original container through a return line.

Best Oil Is About 225 Ssu.

We have experimented with oils from 150 to 500 viscosity and found that the system handles 225 to 250 viscosity ssu. at 100° F. best.

We figure that the cost of putting automatic centralized lubrication on each ring is about $1.06 per ring; but when new rings cost us about $2.65 each, we are saving money on rings alone. In fact, the system has been so profitable we are extending it to our 80 W-3 looms.

Industry Standard for Lower Maintenance Costs

LQ600®

Here's Why: Long accepted valve maintenance costs are a thing of the past in thousands of plants where LQ600's have been installed . . . even in the most severe services where previous valves required repair or replacement after as little as two weeks on the line.

These outstanding savings are made possible by seats and discs of Brinalloy®, a patented Lunkenheimer alloy that is more resistant to wear and corrosion than 500 Brinell Stainless or 1000 Brinell Case-Hardened Stainless Steel.

Add to this the Lunkenheimer exclusive silicon-bronze Stemalloy®, the most durable stem material ever put into a valve, and you have two important reasons why LQ600's have established new low-maintenance standards everywhere they are installed.

For an actual comparison test, call the Lunkenheimer Distributor in your area. He is an expert on valve maintenance costs and will be glad to demonstrate the maintenance-saving benefits you receive when you install LQ600's . . . or write The Lunkenheimer Company, Cincinnati 14, Ohio

LUNKENHEIMER QUALITY

LUNKENHEIMER®

THE ONE *Great* NAME IN VALVES

For more data, write this page number on Reader-Service card. →

"Buffalo" Resin-Bonded Fiber Glass Fume Fan

CORROSION-CONTROL PROBLEMS?

SOLVE THEM WITH THESE SPECIAL "BUFFALO" UNITS

The broad line of "Buffalo" equipment for corrosion control, plus our 80 years of engineering experience in this field, insures you of the most effective solution of your corrosive fume problems.

Whatever your specific needs, you will find the *right* "Buffalo" product with the *right* protective coating and/or corrosion-resistant parts to fill that need.

Contact your nearby "Buffalo" Engineering Representative, or write us outlining your problem. We will be glad to provide you with a prompt, practical, economical solution.

"Buffalo" Type "FG" Fume Fans provide superior chemical resistance to a wide variety of corrosives, including acids, salts, gases, organic materials. Temperature applications range up to 225°F.

The fan housing is formed of resin-bonded fiber glass. All exposed areas of the carefully-balanced steel rotor are encased in thick fiber glass. The "FG" is available in standard capacities up to 34,000 cfm at pressures to 10" static.

For full details, including chemical resistance table, write for Bulletin FI-511.

"Buffalo" Cast Iron Exhausters, widely-used throughout the chemical process industries, are engineered to operate under the most extreme corrosive conditions.

Husky cast iron housings, plus cast inlet cones with integral inlet vanes, guide air smoothly into the wheels. The result is the low-turbulence air flow inherent in this high-efficiency design. Non-overloading is insured, regardless of system pressure.

Three arrangements are available: direct motor drive, separate belt drive or a package unit with adjustable pitch V-belt drive and motor mounted on adjustable base rails.

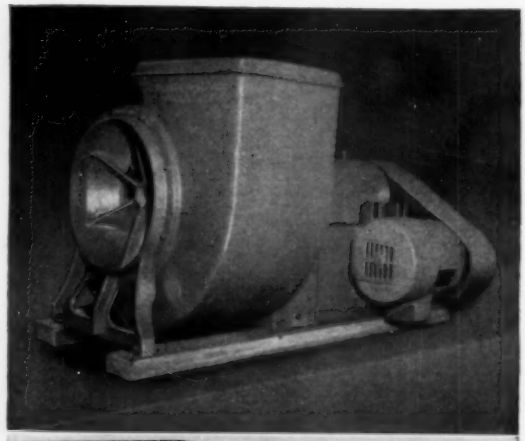
For full information on "Buffalo" Cast Iron Exhausters, contact your nearest "Buffalo" Representative or write us direct.

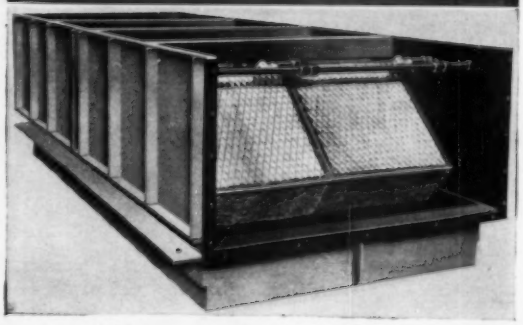
"Buffalo" Gas Absorbers are designed for highly efficient removal and/or recovery of soluble gases, vapors and mists from exhaust systems before discharge to the atmosphere. Absorption is accomplished when the contaminant is completely in solution. This is accomplished by means of an absorbent liquid sprayed on a series of fiber cells.

Field performance tests prove that efficiency of "Buffalo" Gas Absorbers ranges up to 99.8%. Applications fall into two categories: removal of low concentrations from stack gas effluents for prevention of atmospheric pollution, and the absorption of process or off-gases containing sufficient material to make reutilization economically feasible.

Bulletins AP-225 and AP-2500 will guide you to the proper "Buffalo" Gas Absorber to solve your contamination problem. Write for it today.

EVERY "BUFFALO" PRODUCT FEATURES THE "Q" FACTOR — the built-in Quality which provides trouble-free satisfaction and long life.





Top *"Buffalo" Cast Iron Exhauster*

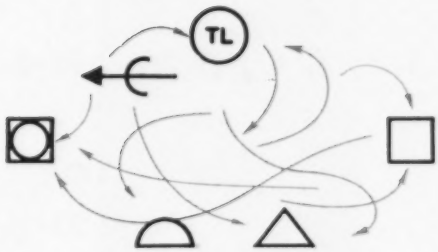
Bottom *"Buffalo" Gas Absorber*

BUFFALO FORGE COMPANY

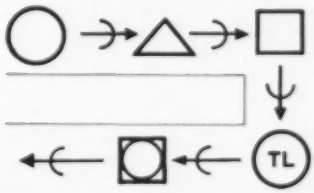
BUFFALO, N. Y.

Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

VENTILATING • AIR CLEANING • AIR TEMPERING • INDUCED DRAFT • EXHAUSTING
FORCED DRAFT • COOLING • HEATING • PRESSURE BLOWING



HUNTER HELPS SOUTHERN MILLS MAKE THE RIGHT MOVES



HUNTER DEVELOPED A CUSTOM-DESIGNED SYSTEM TO HANDLE MATERIALS MORE ECONOMICALLY!

You too can save *more* of the cost of keeping materials in motion in your plant, with a Hunter-engineered conveyor system. Hunter specialists can show you how to solve every horizontal, vertical, diagonal motion problem — and *compound* manpower savings with additional returns in versatility, efficiency and dependability.

Hunter-planned installations of overhead trolleys, skate wheel conveyors, standard roller type, live roller and belt conveyors, automatic chute loaders and elevators can keep material flowing smoothly throughout your plant. A Hunter engineering consultant will gladly show you how amazingly fast such an installation can pay for itself. Call him today — no obligation, of course.

Two complete overhead trolleys, on ground floor and mezzanine of this mill, transport detachable trucks along materials flow pattern. Two automatic elevators transfer trucks between floors, automatically connect them to the proper loop.

Packages for shipping are loaded via chute directly into trucks on telescopic roller conveyors. The complete mill installation, engineered by Hunter assures a smooth, even flow of materials from their receiving point to the shipping platform.

JAMES HUNTER

JAMES HUNTER INCORPORATED • GREENVILLE, SOUTH CAROLINA

A SUBSIDIARY OF JAMES HUNTER MACHINE CO. • NORTH ADAMS, MASSACHUSETTS

SINCE 1869

"VERYBEST" LOOM NECESSITIES

JACOBS

THE BULLARD CLARK COMPANY

JACOBS

SOUTHERN DIVISION
Charlotte, N. C.

NORTHERN DIVISION
Danielson, Conn.

First

from BALTIMORE

The First SUBMARINE of practical value was the "ARGONAUT", invented by SIMON LAKE and built by the Columbia Iron and Dry Dock Co., of BALTIMORE in 1897.

Courtesy – The Baltimore News-Post

– also from Baltimore...

YOUR *First* CHOICE IN BLACKS

- DIRECT
- ACID
- DEVELOPED
- ACETATE
- FORMALDEHYDE
- LOGWOOD

THE HOUSE OF BLACKS

Consult your local dyestuff distributors for information and samples. Shipments can be made from our Baltimore factory.

YOUNG ANILINE WORKS, INC.

OFFICE AND FACTORY: 2701-2733 BOSTON STREET • BALTIMORE 24, MARYLAND

GAYLORD TRIMS
YOUR PACKAGING COSTS

Gaylord's approach to packaging doesn't stop with the corrugated box itself. We take a fresh look at your entire packing and handling cost picture, then tailor a program to your exact measure.

Regular cartons in big volume . . . engineered packaging . . .
your nearby Gaylord man knows both. And he is cost-conscious either way.

GAYLORD
CONTAINER CORPORATION

Gaylord Boxes

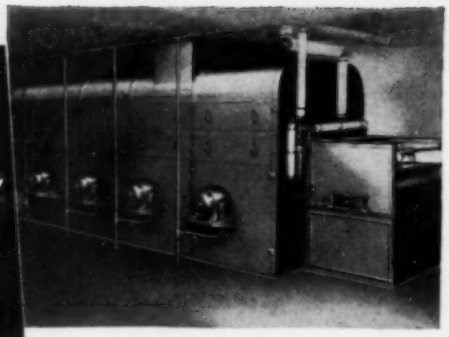
HEADQUARTERS, ST. LOUIS
PLANTS COAST TO COAST

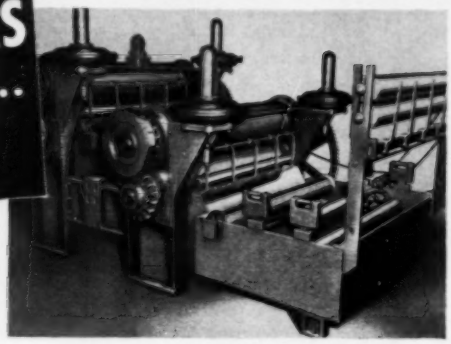
DIVISION OF **Crown Zellerbach Corporation**

For better Fibre Processing

SARGENT WASHERS AND DRYERS

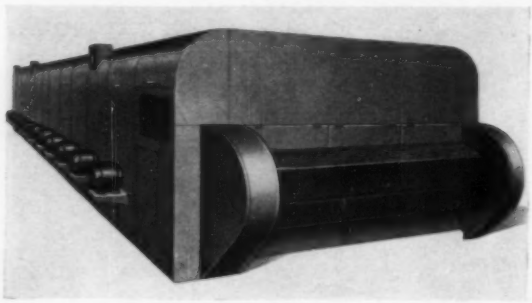
any Fibre... any blend





Backwasher and Backwash Dryer — pneumatic loading, washer has stainless steel rolls and bowls. Dryer's new design allows lowered operating temperatures, eliminates brittle ends, injury to tops.

Tops in their field, these rugged machines are continuous and automatic, completely dependable. Fibre quality protection, operating efficiency and economy are unsurpassed . . . Sargent Washers provide *clean* water for the final rinse — automatically timed dump controls remove sediment from each bowl at pre-set intervals. Lanolin recovery systems for wool washers, side-settling tanks if desired. . . . Sargent Dryers are the standard for the industry — the speediest, easiest dryers on the market to install, economical to operate, simple to maintain. The Single Apron Dryer is the simplest, most compact down-draft dryer ever built. Another "first" by Sargent is a gas-fired wool dryer, suitable for all fibres, that protects the quality of even the finest cashmere. The Contra-Flow Dryer with its revolutionary up-and-down air flow guarantees fastest, completely uniform drying through entire bed of fibres. May we tell you more?



Raw Stock Dryer — Single Apron, downdraft. For scoured, bleached or dyed wools, cottons, synthetics.

Raw Stock Dryers; Backwashers and Backwash Dryers; Stainless Steel Washers and Bowls; Continuous Automatic Extractors and Squeeze Rolls; Contra-Flow Dryers; Washers for scouring, bleaching, acidifying; Lab Washers and Dryers; Pilot Plant Dryers; Skein (pole) Dryers; Yarn scouring machines; Shrink-treatment systems; Automatic Feeds; Conveying Systems; Yarn and Top Presses.

C. G. SARGENT'S SONS CORPORATION

Graniteville, SINCE 1852 Massachusetts

PHILADELPHIA 19 — F. E. Wasson, 519 Murdock Road
CINCINNATI 15 — A. L. Merrifield, 730 Brooks Avenue
CHICAGO 44 — John Law & Co., 5850 West Lake St.
DETROIT 27 — Clifford Armstrong Co., 16187 Grand River Ave.
HOUSTON 17, TEX. — The Alpha Engineering Co., Box 12371
CHARLOTTE, N.C. — W. S. Anderson, Carolina Specialty Co.
ATLANTA, GA. — J. R. Angel, Mortgage Guarantee Building
TORONTO 1, CAN. — Hugh Williams & Co., 27 Wellington St. East

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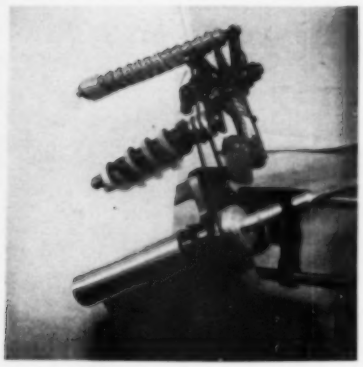


Electric-Eye Control

An electric-eye control for knitted-goods guiders is marketed by Guider, Roll & Service Co., Box 3747, Daytona Beach, Fla. The electric eye is sensitive to a red exciter lamp and is affected very little by surrounding light.

For guiding knitted goods, the front rolls of the guiders are driven by flexible shafts, which are driven by a counter or jack shaft and synchronized with the cloth travel. Selvage uncurlers, which are also belt driven and move slightly faster than the cloth, are often placed ahead of the guiders.

There are spiral rolls on each side of the cloth to take up loose selvages. These rolls are on movable arms, and they ride with the cloth. The rolls start the turned selvages on their way out. The selvages are then picked up by the uncurlers.

Both air and electric guiders are available with the new electric-eye control. The control can be furnished for air guiders already in use.

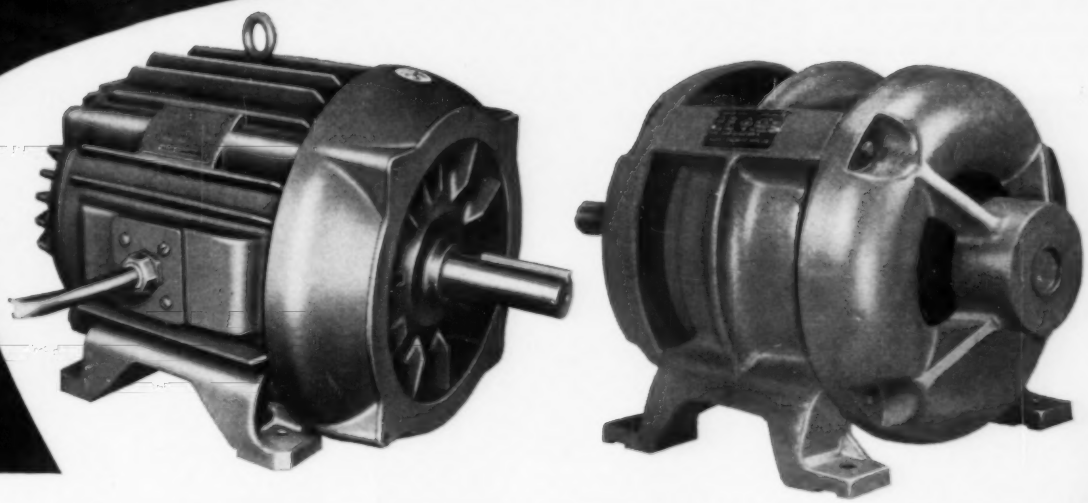
Circle T-24 on Reader-Service Card

Yarn Conditioner

An attachment for the automatic Abbott quiller that conditions the filling yarn as it is wound on the bobbin has been announced by Mona Industries, Inc., 67-75 E. 23d St., Paterson 4, N. J.

The attachment is simple and does not contain any moving parts. The amount of conditioning liquid that is transferred to the yarn can be regulated within the limits of 3% and 15%.

The conditioning increases the breaking strength of cotton, helps



long-run power by Allis-Chalmers

If you specify

Allis-Chalmers textile motors or equal

. . . remember that the "equal" is possible only in two respects: price and nameplate specifications. You can't match the long-run power of Allis-Chalmers textile motors.

- Cast-iron frames guard against physical damage . . . keep bearings aligned, stator free from distortion. AND this same frame construction permits all-important free air flow around the motor to prevent lint and dirt from settling.
- Prelubricated, sealed bearings operate for longer periods without attention. Lint and dirt stay out.
- Double insulation provides high dielectric strength with greater resistance to humid mill atmospheres.

These features, with others, make up the long-run power of Allis-Chalmers motors. They are available in both open and totally-enclosed construction.

For more information contact your A-C representative or distributor, or write Allis-Chalmers, General Products Division, Milwaukee 1, Wisconsin. Ask for Bulletin 51B6055C.

A-C ALLIS-CHALMERS

A-5709

No. 6 in a series—**how your Du Pont salesman is backed by many sales-building activities including Fiber Research, Technical Service, Fabric Development and Merchandising.**

Du Pont sells ideas

This is Du Pont's exhibit at the recent NARCF Convention in Chicago. On the right is Willard Cole, President of Henry C. Lytton Co., one of Chicago's leading apparel stores. He is discussing Lytton's plans for wash and wear with two Du Pont merchandising men . . . Don Holmes (left), Merchandising Manager for men's wear, and Joe Davidson, Merchandising Specialist in men's furnishings.

Du Pont merchandising representatives are in constant touch with all levels of the textile industry. At trade activities such as the NARCF Convention they promote new ideas that stem from Du Pont's modern-living fibers. Ideas like regular and automatic wash and wear. Ideas that help build new and larger markets for fabrics made with Du Pont fibers.

FROM RAW FIBERS TO RETAIL SALES . . .

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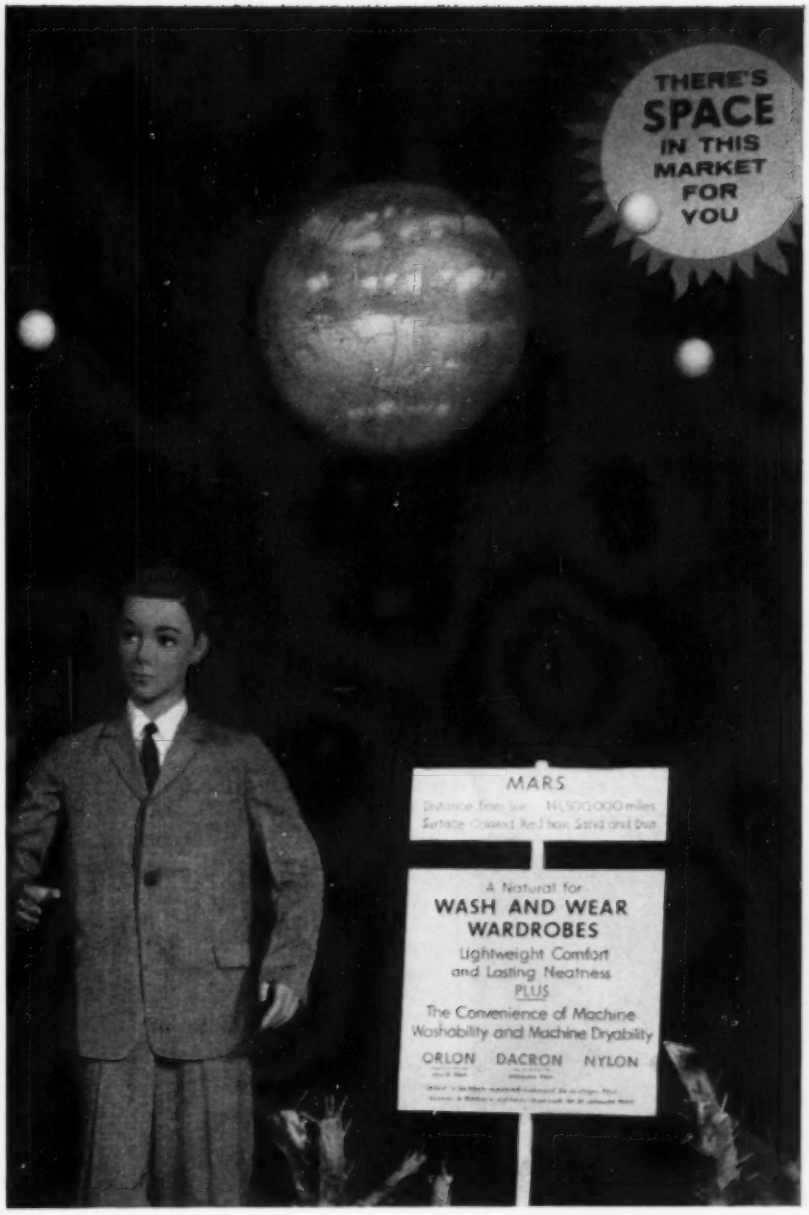

THERE'S SPACE IN THIS MARKET FOR YOU
MARS
A Natural for
WASH AND WEAR WARDROBES
Lightweight Comfort and Lasting Neatness
PLUS
The Convenience of Machine Washability and Machine Dryability
ORLON DACRON NYLON

as well as fibers

When skilled merchandising men like Don Holmes and Joe Davidson return to Du Pont, they bring back market reactions. They report facts. Attitudes. Results. Predictions. All of which aids in making your Du Pont salesman the best informed in the industry . . . helps you and Du Pont anticipate new demands, plan broader markets.

Du Pont believes it can increase the market for its fibers and thus benefit its customers by providing useful assistance to all levels of the textile industry. It's through your Du Pont salesman that you, as a customer, have access to a range of technical and merchandising information unique in the textile industry . . . access to the latest in *ideas* as well as fibers and fiber technology.

Product and Process Notes from Du Pont

Du Pont's No. 7 Thick and Thin rayons, formerly produced only in deniers from 100 through 450, are now available in heavier deniers to permit broader application in home-furnishings end uses. These yarns, for example, in 900, 1800, and 2700 deniers, will impart completely new styling effects to drapery and upholstery fabrics.

Fiber stress-strain properties—a new 36-page Technical Information Bulletin (X-82) provides data on the stress-strain properties of eight fibers (acetate, "Dacron"* polyester fiber, "Orlon"** acrylic fiber, nylon, rayon, cotton, silk and wool), under a variety of hot-dry and hot-wet conditions. This research is from the third phase of a broad fiber characterization program sponsored by Du Pont at North Carolina State College. The bulletin also describes how a knowledge of fiber properties can be useful to the mill man and design engineer.

Du Pont announces commercial availability of six new nylon hosiery yarns in response to the industry's intensified efforts to bring new styling and greater variety to women's hosiery. The new yarn counts are as follows:

17 denier: 2 filament	**14 denier: 2 filament**
21 denier: 3 filament	**15 denier: 3 filament**
28 denier: 4 filament	**20 denier: 2 filament**

The addition of these yarns makes it possible for the hosiery manufacturer to increase his range and styling from the sheerest to full service weights.

Nylon on draw-wound tubes improves processing—The use of draw-wound tubes in place of bobbins will improve processing for reverse twist to obtain S and Z plied yarns. These tubes are now available in all deniers.

Technical information bulletins contain detailed, practical information on Du Pont product and process developments. They cover fiber properties, mill processing, dyeing, finishing and fabrication. Refer to your copies frequently; they can save you time and money. To be sure you have all the bulletins you need—check with your Du Pont salesman or technical-service representative.

*Du Pont's registered trademark for its polyester fiber.
**Du Pont's registered trademark for its acrylic fiber.

Enjoy the "Du Pont Show of the Month"—on CBS-TV

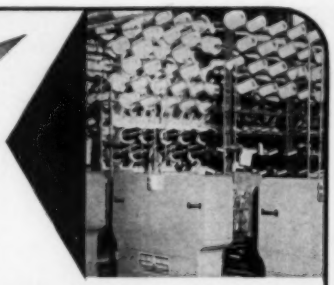
DU PONT
REG. U. S. PAT. OFF.

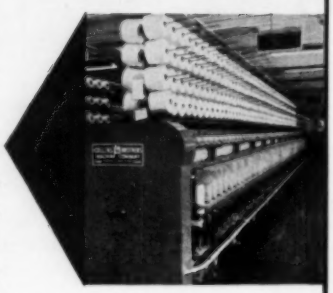
BETTER THINGS FOR BETTER LIVING
...THROUGH CHEMISTRY

DU PONT BUILDS PROFITS FOR YOU

For more data, write this page number on Reader-Service card. →

There is a Collins Twister for every Ply Yarn Construction





Collins produces the most complete line of twisters on the market . . . Novelty, Ply, Big Ring, Beam, Cabling, Wet, Trap, Rayon, Paper, Glass, Single or Dual Drive, and Special Twister Take-ups.

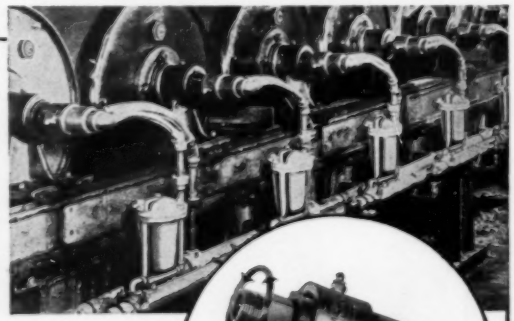
Since 1866 Collins Twisters have been the finest in the field. Today's line offers you many valuable exclusive features. Let us give you full information on the machines you need.

COLLINS BROTHERS MACHINE COMPANY

647 Roosevelt Ave., Pawtucket, R. I. • Charlotte • Chicago
Hugh Williams & Co., 27 Wellington St. E., Toronto 1, Canada

your

Best Steam Team



Type "S" ROTARY UNION

PSC UNITRAP

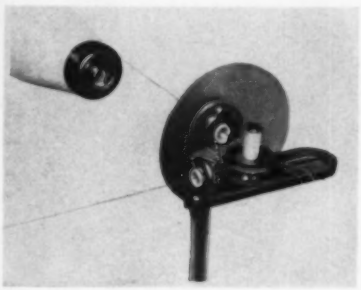
You can't beat this combination for heating drums and saving steam. The ROTARY UNION* is a trouble-free precision mechanical rotating seal which is self-adjusting and self-aligning. The UNITRAP® is the only trap which *automatically* delivers peak efficiency at all pressures from 0 to 125 lbs. Handles a tremendous volume with a minimum of wear. All working parts are stainless steel. Just order by pipe size, ½" through 2". Contact our nearest office or write for Bulletin 700W and 800W.

*Trade Name—Patented

Home Office and Factory:
PERFECTING SERVICE COMPANY, 332 Atando Ave., Charlotte, N.C.
BRANCH OFFICES: BALTIMORE—CAMDEN, N. J.—CHICAGO—CLEVELAND—LOS ANGELES—NEW YORK—PROVIDENCE—MONTREAL—TORONTO

control static electricity in wool and man-made fibers, and makes most spun yarns more pliable, with less fly.

Circle T-25 on Reader-Service Card



Yarn-Tension Control

An electric yarn-tension control announced by Lindly & Co., Inc., 248 Herricks Road, Mineola, Long Island, N. Y., applies an adjustable force between two disks. The disks are similar to those used in many textile machines, but there are no weights or springs attached to the disks. The disks are controlled by an electromagnet.

The yarn runs around a ceramic post and between the disks. Force can be applied simultaneously at all tension stations and can be controlled from a central point to create tension from almost zero to over 15 grams on all yarn ends.

If unequal tension is created on the yarn because of the angle at which some ends of yarn leave the creel or because the yarn goes through more guides in the creel, certain sets of tension devices may be made to create more tension. For the best tension, each station may be provided with an individual control that can be adjusted to compensate for yarn angle, creel-guide friction, and other variations.

Once the initial compensating adjustment has been made, all stations can be controlled simultaneously. Because only one post is necessary, tension irregularities are minimized.

Circle T-26 on Reader-Service Card

Elastic-Web Loom

A high speed loom for the weaving of elastic web has been announced by Fletcher Works, Inc., Philadelphia, Pa.

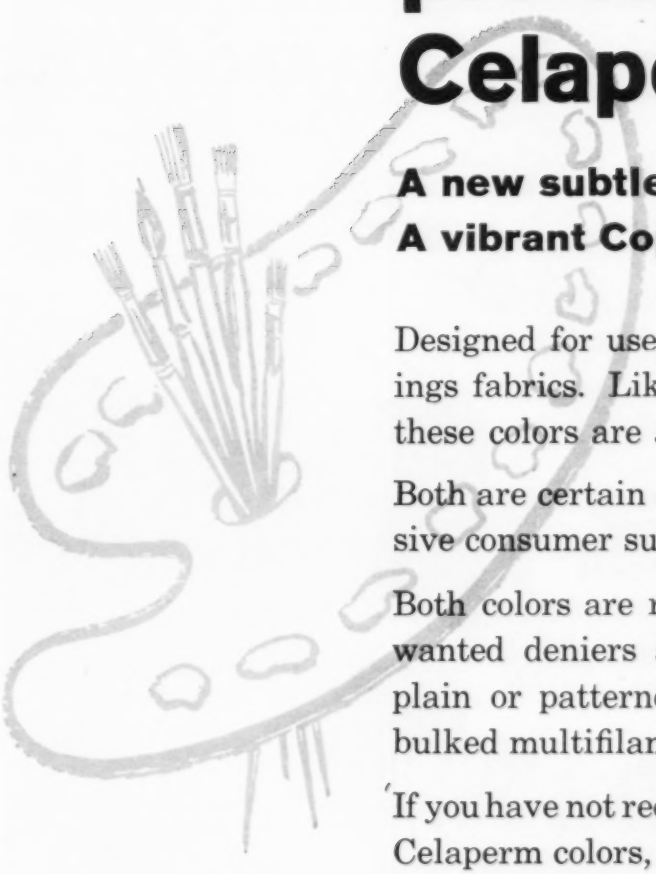
The loom is built on the standard 9-ft. frame and carries 36 spaces of 1¼-in. elastic. It will operate at speeds up to 200 ppm.

Start, stop, and jog control buttons are mounted on the front arch rail

announcing

two new pre-tested Celaperm colors

A new subtle Willow Green, C-69
A vibrant Copper Leaf, C-70



Designed for use in apparel and home furnishings fabrics. Like all Celaperm acetate yarns, these colors are *sealed in.*

Both are certain of market acceptance as extensive consumer surveys have indicated.

Both colors are readily available in a range of wanted deniers and twists—put up on cones, plain or patterned section beams and also in bulked multifilament yarns.

If you have not received samples of these two new Celaperm colors, call your Celanese representative. Celanese Corporation of America, Textile Sales Division, Charlotte, N. C.

Celanese® Celaperm®

District Sales Offices: 180 Madison Ave., New York 16, N. Y. • P. O. Box 1414, Charlotte, N. C. 819 Santee St., Los Angeles, California • Room 10-141 Merchandise Mart, Chicago 54, Illinois 200 Boylston St., Chestnut Hill 67, Mass.

Export: Amcel Co., Inc. and Pan Amcel Co., Inc., 180 Madison Avenue, New York 16, N. Y.

In Canada: Chemcell, Canadian Chemical & Cellulose Co., Ltd., 2035 Guy St., Montreal

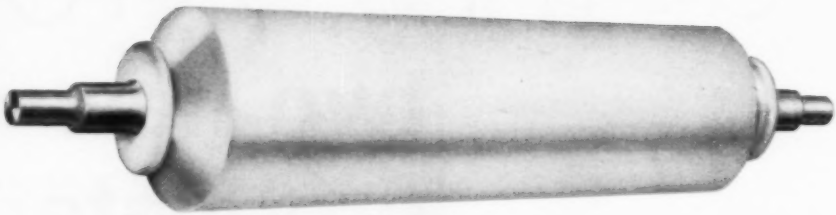
Celaperm . . . a Celanese contemporary fiber

For more data, write this page number on Reader-Service card. →

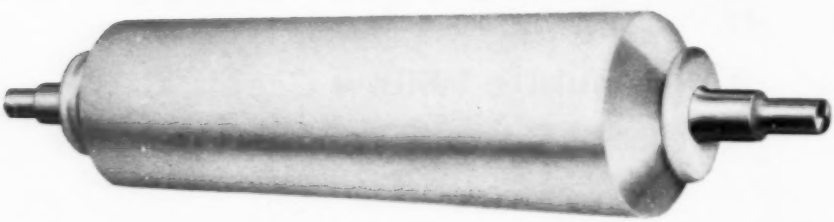
NOW! NEW MANHATTAN TEXTILE ROLLS

TEXTRACTOR ROLL

NEW crack-resistant cover and compounding methods extract *more* water . . . reduce crush on mangle roll!



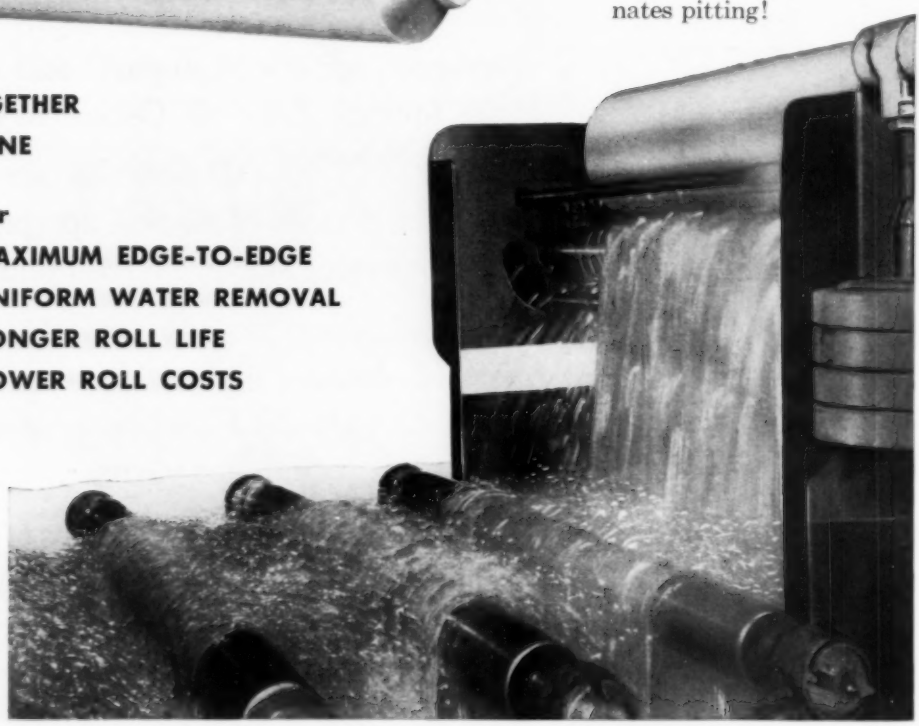
TEXROC ROLL



NEW hard white cover extracts up to *10% more water* than metal rolls . . . minimizes chemical and dye build-up and eliminates pitting!

BRING THEM TOGETHER ON *YOUR* MACHINE

for
MAXIMUM EDGE-TO-EDGE UNIFORM WATER REMOVAL
LONGER ROLL LIFE
LOWER ROLL COSTS



RM822

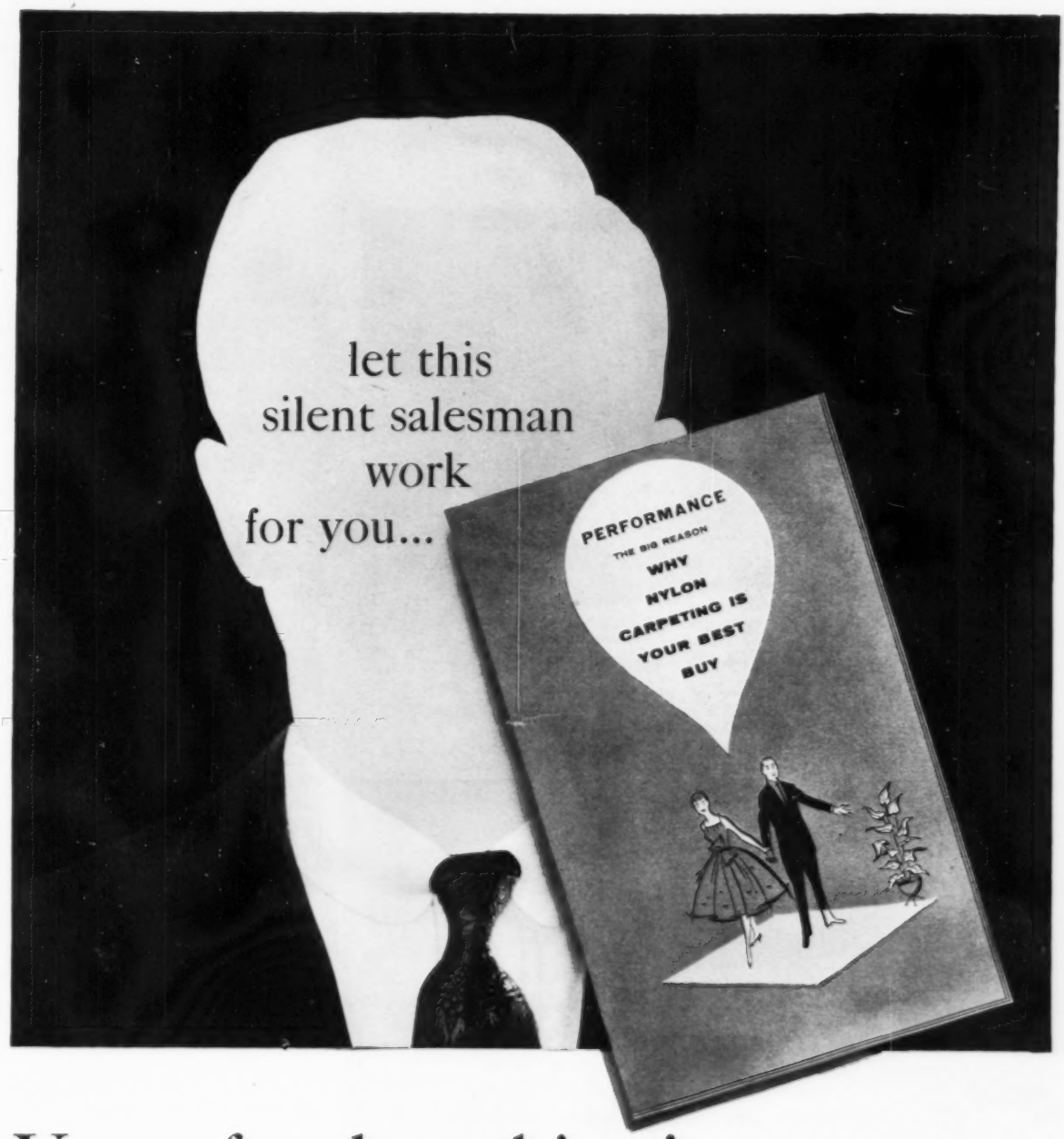
ROLL COVERING PLANTS AT PASSAIC, N. J. • NEENAH, WIS. • N. CHARLESTON, S. C.
BELTS • HOSE • ROLL COVERINGS • TANK LININGS • INDUSTRIAL RUBBER SPECIALTIES

MANHATTAN RUBBER DIVISION — PASSAIC, NEW JERSEY

RAYBESTOS-MANHATTAN, INC.

Other R/M products: Abrasive and Diamond Wheels • Brake Blocks and Linings • Clutch Facings • Asbestos Textiles • Mechanical Packings • Engineered Plastics • Sintered Metal Products • Industrial Adhesives • Laundry Pads and Covers • Bowling Balls

← For more data, write this page number on Reader-Service card.



Yours, for the asking!

IRC's 16-page consumer booklet on NYLON CARPETING contains facts, figures and much of the photo-test material that has so impressed the trade. It was designed for *your customers* and shows photos that prove nylon's outstanding performance characteristics—extraordinary in comparison with other carpet fibers.

This valuable little book tells the NYLON CARPET story in a way you and your salesmen rarely get the chance to. It's non-commercial—objective and truly informative for your thousands of potential nylon carpeting customers.

It gives your customers advice on nylon carpet care and cleaning. It's a book that helps you sell nylon carpeting! Send for as many copies as you reasonably think you'll need. They're yours, for the asking!

THE NEW Nylon Staple I·R·C

NYLON FIBER DIVISION, I.R.C., INDUSTRIAL RAYON CORPORATION, 500 Fifth Avenue, New York 36, N. Y.

NYLON FIBER DIVISION, I.R.C.
Industrial Rayon Corporation
500 Fifth Avenue, New York 36, N.Y.

Gentlemen:

Please send me____ copies of your Nylon Carpeting consumer booklet.

Name_____

Position_____

Store Name_____

Address_____

City_____ Zone____ State____

TW-5

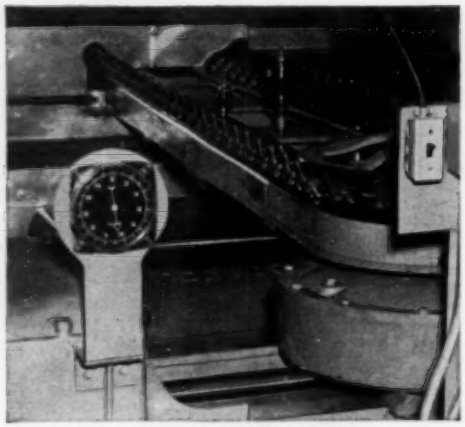
For more data, write this page number on Reader-Service card. →

JONES TACHOMETERS GIVE VISUAL CHECK IN YARDS, FEET PER MINUTE

Tests Show Even Better Quality at Higher Consistent Machine Speeds

Constant visual readings of exact speeds as provided by Jones Tachometers have proved a boon to many operations in the textile industry.

By a series of careful tests in a number of plants it has been shown that the average operator runs his tenter, palmer or other finishing machine at a speed slower than is efficient for fear that he may damage goods.



Jones Tachometer on Tenter Machine

Labor cost cut by one-third

—It was found, for example, that lightweight cotton cloth, which should have been running at 35 yards per minute, was running only slightly over 23 yards per minute. By using a Jones Tachometer, the same operator maintains a consistent speed of 35 yards per minute.

Self-liquidating investment

—The initial cost of a Jones Tachometer installation is negligible compared to the greater dollar-volume almost immediately realized in terms of reduced labor costs, increased production and improved quality.

Write for your free copy of Catalog 149-4 describing fixed and portable type tachometers.

JONES MOTROLA CORPORATION

STAMFORD, CONNECTICUT

For More Data Enter TA 4295 on Request Postal Card

AT YOUR SERVICE

SPECIALIZED ENGINEERING
SPECIALIZED EXPERIENCE
SPECIALIZED MACHINERY
FOR
TWISTING • FORMING
STRANDING • BUNCHING
COTTON • JUTE • MANILA • SISAL
NYLON • DACRON • ORLON • SARAN
PAPER • POLYETHYLENE • GLASS

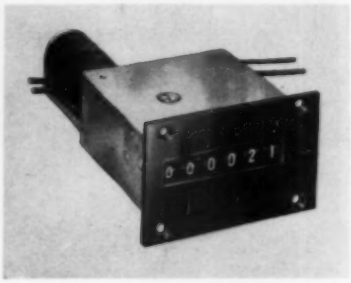
TEXTILE • WIRE • CORDAGE and OTHER INDUSTRIES

HASKELL-DAWES

MACHINE CO., INC.
2231 E. Ontario Street
Philadelphia 34, Pa.

within easy reach of the operator. Signal lights show the section in which a warp end is broken, and there is also a light that designates the time for filling change.

Circle T-27 on Reader-Service Card



Electrical Counter

An electrical counter to fill the gap between standard counters and electronic counters for industrial, data-processing, laboratory, or scientific uses is being made by Veeder-Root, Inc., 20 Sargent St., Hartford 2, Conn. The counter, Series 1591 Electrical, is designed for accuracy and long life at high speeds. It is rated at 3,000 counts per minute, with extended test runs up to 6,000 counts per minute.

Instant push-button resetting is possible mechanically right on the machine or electrically from a distance in $\frac{1}{10}$ sec. Panel groups of these electrical counters can be placed in your office, and one push button can reset an entire panel.

Counters feature large figures, small over-all size, and low-wattage coils for continuous duty.

Circle T-28 on Reader-Service Card

Corrosive-Fluid Pumps

Corrosive fluids touch only Teflon or Kel-F surfaces in a line of pumps marketed by Vanton Pump & Equipment Corp., 201 Sweetland Ave., Hillside, N. J. There are no seals or stuffing boxes in the pumps, which operate through an eccentric rotor rotating within the housing.

Circle T-29 on Reader-Service Card

Heated Magnetic Stirrer

A combination hot plate and magnetic stirrer has been announced by Fisher Scientific Co., 717 Forbes St., Pittsburgh 9, Pa. The aluminum top

"...and we saved again this month with help on purchasing from Ryerson"

More and more, cost-conscious management is receiving reports like this—as a direct result of dollar-stretching planned purchasing from Ryerson.

Buying cut-to-size steel the fast, convenient Ryerson way cuts your costs by making it safe to carry lower inventories. This, in turn, means reduced investment in equipment as well as materials—and cuts storage space, handling costs, scrap loss, taxes, etc. You're never overloaded . . . you're never caught short. You avoid jamming up smooth-flowing production lines . . . wrecking carefully calculated production schedules.

A Ryerson specialist is as near as your telephone—prepared to recommend the best types of materials and show you how Ryerson unequaled stocks and facilities can be put to work for you.

RYERSON CERTIFIED QUALITY

RYERSON STEEL

Member of the REPUBLIC Steel Family

Principal Products: Carbon, alloy and stainless steel—bars, structurals, plates, sheets, tubing—aluminum, industrial plastics, metalworking machinery, etc.

JOSEPH T. RYERSON & SON, INC. PLANTS AT: NEW YORK • BOSTON • WALLINGFORD, CONN. • PHILADELPHIA • CHARLOTTE • CINCINNATI • CLEVELAND DETROIT • PITTSBURGH • BUFFALO • INDIANAPOLIS • CHICAGO • MILWAUKEE • ST. LOUIS • LOS ANGELES • SAN FRANCISCO • SPOKANE • SEATTLE

For more data, write this page number on Reader-Service card. →

Tuffer
TRADE MARK

CARD CLOTHING

Trimmed to Give Full Carding Efficiency

The trimming operation in the manufacture of card clothing is a very important one. It must be RIGHT if top quality production is to be attained.

TUFFER Precision Trimming is one of the major reasons why TUFFER Card Clothing fits the cylinders so smoothly and does such a fine job.

The perfectly-trimmed sides of each TUFFER fillet fit snugly and properly against each other, forming a single unit of clothing that has every point in position . . . and with all the wires having a complete uniformity of height, pitch and angle.

For years hundreds of mills have reordered TUFFER Card Clothing time after time. It fully meets the requirements of those who want the best.

B-4

Manufacturers of Card Clothing since 1866

HOWARD BROS.

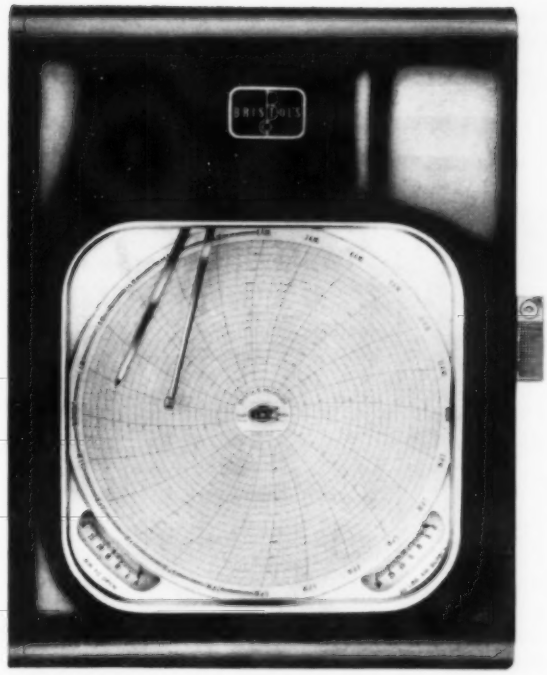
WORCESTER 8, MASSACHUSETTS

Southern Plants: Atlanta, Ga., Gastonia, N. C., Greenville, S. C.

Direct Representation in Canada

TUFFER PRODUCTS Card Clothing for Woolen, Worsted, Cotton, Asbestos and Silk Cards • Napper Clothing, Brush Clothing, strickles, Emery Fillets. Top Flats Re-covered and extra sets loaned at all plants. Lickerins and Garnet Cylinders from 4 to 30 inches and Metallic Card Breasts Rewired at Southern Plants • Midgley Patented, and Howard's Special Hand Stripping Cards • Top Flat Chains

← For more data, write this page number on Reader-Service card.



Your newest man can operate and maintain this controller

He'll catch on quick to the Bristol Series 500 Controller without a complicated, lengthy training period.

In fact, your plant can have Bristol Series 500 Controllers, even if you don't have a formal instrument department at all. Many small instrument users are doing this today. Yet the 500's performance is such that one of the largest, most widely known chemical companies in the country just bought seventy 500's for its exacting processes.

Here are the big reasons the 500's a favorite with all instrument users, both large and small: (1) Basic simplicity of the operating mechanism; (2) Bristol measuring elements insure the utmost accuracy.

Another big simplification: You can exactly calibrate the Series 500 Controller with only one single adjustment, even after complete disassembly and reassembly with replacement of parts.

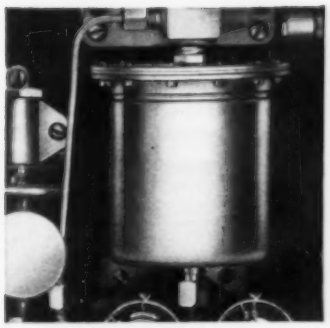
Get complete data on Bristol Series 500 Pneumatic Controllers now, before you order another instrument. Write for bulletin A 130, The Bristol Company, 103 Bristol Road, Waterbury 20, Conn. B-19

Several hundred standard models meet every process requirement including:

These problems:	These operating modes:
1. Cascaded control	1. Fixed narrow band (on-off)
2. Selective control	2. Proportional—to 100% and to 30%
3. Ratio control	3. Reset with wide band—to 400%
4. Time program control	4. Derivative (rate)
5. Pneumatic Transmission	5. Reset plus derivative

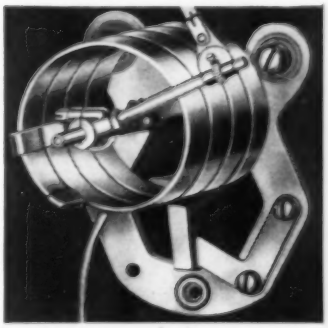
BRISTOL TRAIL-BLAZERS IN PROCESS AUTOMATION

AUTOMATIC CONTROLLING, RECORDING AND TELEMETERING INSTRUMENTS

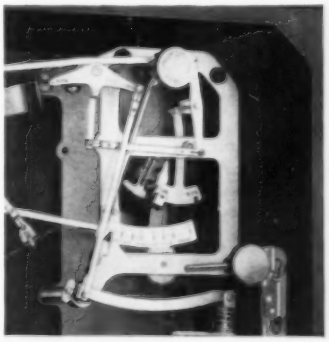


Reset Action Stops (in cylinder), another Bristol exclusive on reset models.

Zero Derivative Setting, exclusive with Bristol on derivative models.



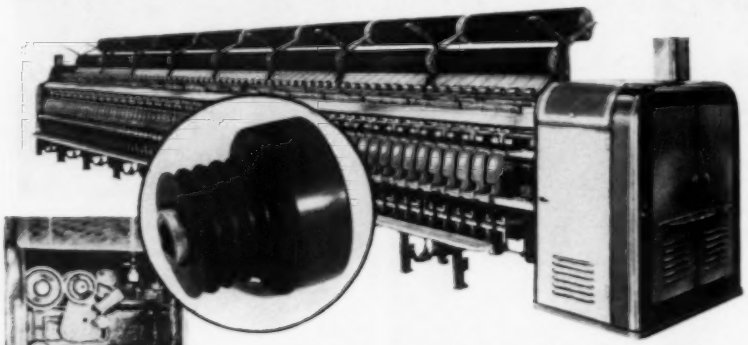
Precision Bristol Measuring Elements insure accuracy.

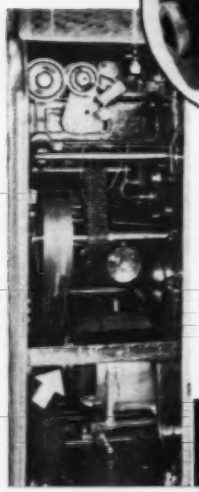


Built-in Calibration assures permanent accuracy of controller action.

For more data, write this page number on Reader-Service card. →

MERCURY CLUTCH SELECTED STANDARD EQUIPMENT ON DAVIS & FURBER FRAME





WHAT DAVIS & FURBER SAY ABOUT THE MERCURY CLUTCH:

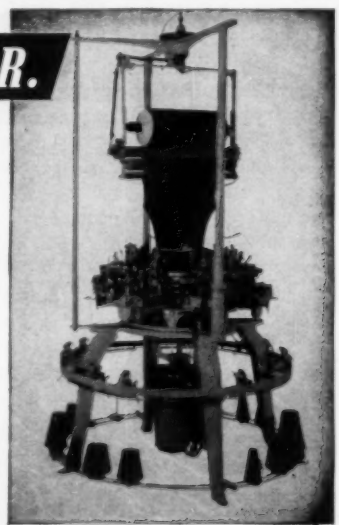
Smooth, easy, automatic starting is very important in the operation of the Davis & Furber Simplex Ring Spinning Frame. It minimizes starting strain and overload on the mechanism and motor, but more important on the yarn to prevent yarn broken ends during frame starting.

Mercury Clutch has been chosen as standard equipment on the Simplex because it supplies that type of starting, many times daily, on every Simplex. Its troublefree operation helps to maintain the frame's high efficiency.

MERCURY CLUTCH DIVISION
Automatic Steel Products, Inc.
1257F Camden Ave. S.W., Canton 6, Ohio

ALL NEW...

TOMPKINS S-1 JR.



MAKES THE MOST PERFECT CLOTH POSSIBLE

HERE'S A TYPICAL EXAMPLE...

Model S-1 Junior making fleece with 400-lbs. of Carter 26's and 8's —five feeds, 18" cylinder, running time 68-turns per minute . . .

- **MINIMUM OF IMPERFECTIONS AND BROKEN NEEDLES**

You can produce any class of cloth in the wide range of circular spring needle knitting—in greater quantity, with less waste and less needle breakage—on the New S-1 Junior! It gives you the proven Tompkins system in fully modern form . . . with triple stop motions, furnishing wheels, new gearless drive, automatic oiler and air cleaner! Get the full story now . . . be among the first to profit!

TOMPKINS BROS. CO.
623 ONEIDA ST. • SYRACUSE 4, N. Y.

Makers of Circular Spring and Latch Needle Knitting Machinery...Since 1846

plate is thermostatically controlled and insulated thoroughly from the motor that drives the magnet. The unit may be used as a heater or a stirrer independently, as wanted.

Circle T-30 on Reader-Service Card

Insulating Material

An organic insulating material of flexible straight-weave continuous-filament glass fabric, coated with a modified-silicone resin, is announced by Westinghouse Electric Corp., Box 2278, Pittsburgh 30, Pa.

Circle T-31 on Reader-Service Card

Variable-Speed Controls

Zero-Max variable-speed controls, introduced by Revco, Inc., 1900 Lyndale Ave., S., Minneapolis, Minn., are designed to give a speed range of 0 to 400 rpm. Standard controls for selecting speed are simple to adapt for remote operation and consist of an easy-to-move positive-locking lever. Screw controls are also available. Special shaft lengths and diameters are made.

Circle T-32 on Reader-Service Card

Automatic Lubricator

A single automatic lubricator, announced by Bijur Lubricating Corp., 151 W. Passaic St., Rochelle Park, N. J., provides two independent lubricating systems for the same machine: one system for a cyclic oil flow and one for a continuous flow.

Circle T-33 on Reader-Service Card

Fine-Speed Controller

An electronic controller from Gerald K. Heller Co., 1819 Industrial Road, Las Vegas, Nevada, provides accurate acceleration and speed control of shunt-wound d.c. motors ranging from 1/50 to ¼ hp. The motor can be started from any speed from 1 to 2,200 rpm. immediately or gradually over a 30-sec. interval.

Circle T-34 on Reader-Service Card

Process-Hot-Water Heater

A heating system for process hot water has been developed by Fred H. Schaub Engineering Co., 2110 S. Marshall Blvd., Chicago 23, Ill. The Iso-Therm system, as it is called, is

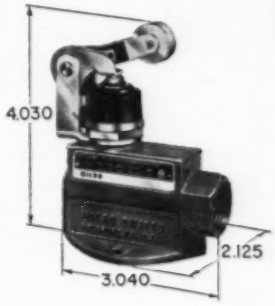
MICRO SWITCH Precision Switches

New "E6" and "V6" Enclosed Switches available in 6 actuator designs

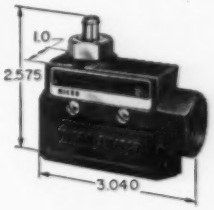
With new ease of installation, improved insulation and sealing, heavier wall sections without change of envelope dimensions, these new switches are interchangeable with our "E" and "V" designs.

Available in six integral actuator designs to meet most precision switch requirements. All six are available in either side mounting (E6) or bottom mounting (V6) style.

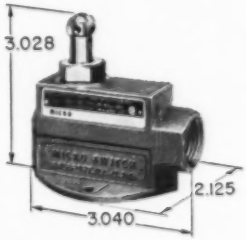
Plunger actuator for straight, in-line operating motion with controlled overtravel. Elastomer actuator boot protects against dirt and moisture.



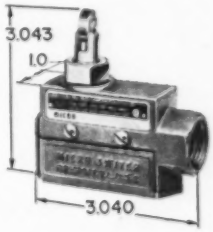
Roller lever actuator for cam or slide motion, adjustable horizontally through 360°, vertically through 225°. Elastomer actuator boot.



Plunger actuator for straight, in-line operating motion with controlled overtravel.



Roller plunger actuator for slow-rise cam or slide motion with controlled overtravel. Roller in line with case.



Roller plunger actuator for cam or slide motion with controlled overtravel. Roller at 90° angle to case.

Roller lever actuator for cam or slide motion, adjustable horizontally through 360°, vertically through 225°

New switch design lets terminal screws project from top portion of the housing. Wiring is easy. Gasket and insulator are one-piece, cemented to bottom housing . . . fewer parts, no separate gasket. The new elastomer insulator-seal provides better insulation and a tighter long-life seal. New housings have thicker walls and greater strength, yet have same outside dimensions and same mounting holes as "E" and "V" switches. New hex-shaped (instead of round) conduit hub greatly facilitates tightening conduit connection. Basic switch is replaceable in all cases.

Send for Data Sheet 145.

MICRO SWITCH . . . Freeport, Illinois, A Division of Honeywell

The two-word name MICRO SWITCH is NOT a generic term. It is the name of a division of Honeywell.

Honeywell

MICRO SWITCH PRECISION SWITCHES

For more data, write this page number on Reader-Service card. →

BETTER YARNS AT HIGHER SPEEDS

with HERR Conical Rings and Flyers!

For 6 oz. Wool and Dacron Blends

5/16" Face Conical Ring. The most popular ring to produce light count yarns at high spindle speeds.

For Medium Counts

3/8" Face Conical Ring for worsted, orlon, nylon, dacron and blended yarns of all types.

For Medium to Heavy Yarns

43/64" Face large diameter Conical Ring. An excellent ring for spinning and twisting wool, synthetic and fiberglass yarns for carpeting, tire cord, woolens and novelty weaves.

Extra-light-weight bobtail.

Four-arm short brass or aluminum base with balance bail wire.

Two-arm, light, long aluminum base.

Special Pollywog flyer for tire cord and heavy yarns.

Four-arm long brass or aluminum base

ACTION OF TRAVELER EQUALIZES YARN TENSION TO REDUCE BREAKAGE

Special Flyers for Helanca and Stretch Nylon Yarns

Better yarns at higher speeds are the rule with Herr Conical Rings and Herr Flyers. Clean, smooth yarns, heavier doffs, less yarn breakage, fewer knots. Designs of flyers and travelers have been worked out for handling synthetics and blends.

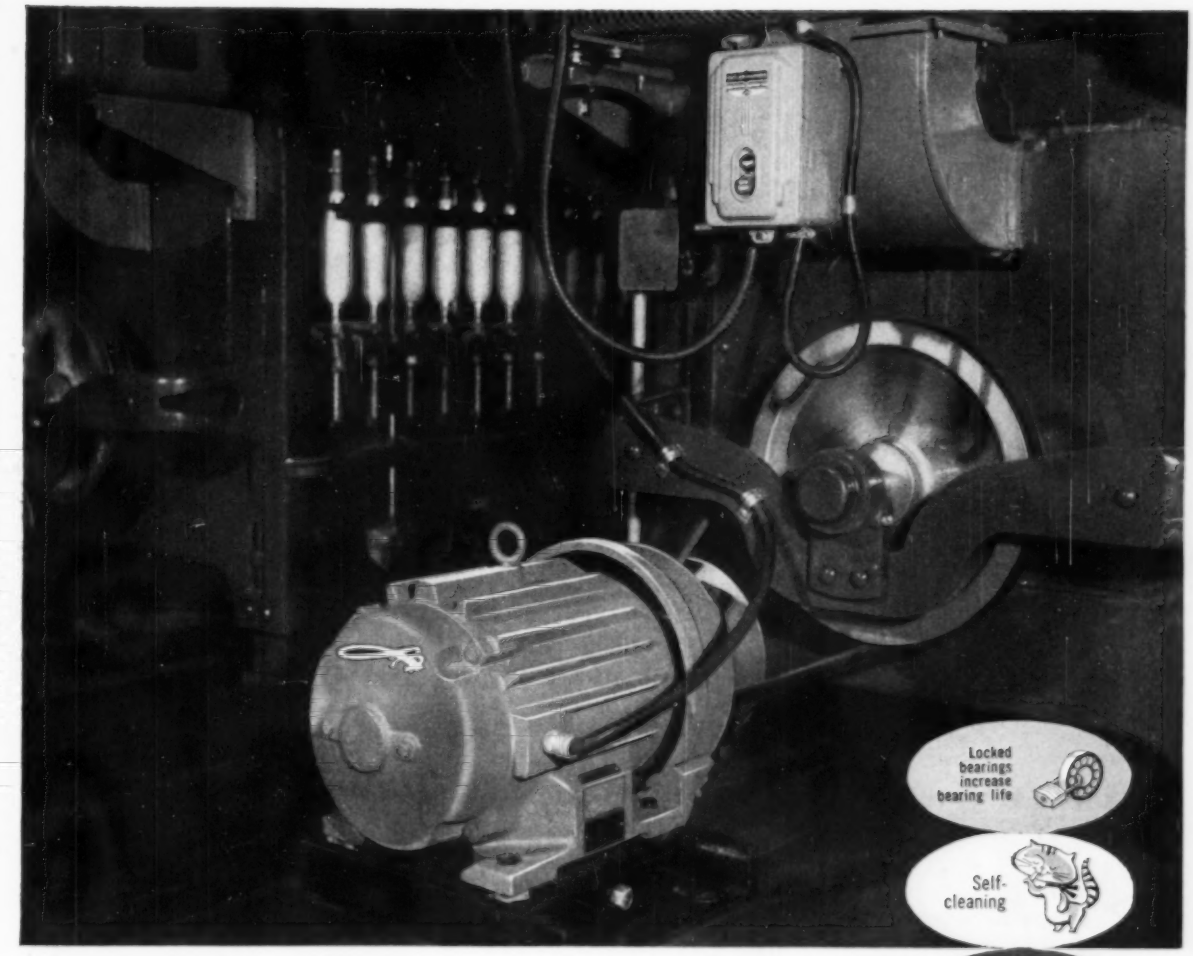
Your problems will have the immediate attention of the Herr technical staff. Write or phone today.

HERR

MANUFACTURING CO., INC.

309 FRANKLIN STREET, BUFFALO 2, NEW YORK

FOR SPINNING AND TWISTING WORSTED, WOOLEN, RAYON, NYLON, ORLON, FIBERGLASS AND BLENDED YARNS OF ALL TYPES



No lint on this motor!

Self-Cleaning Louis Allis "Clean-Flo" textile motor provides double protection in lint-laden atmospheres

Reduce harmful lint pile-ups by powering your equipment with the Louis Allis "Clean-Flo" textile motor shown above.

Note that the fan can be mounted on the shaft end of the motor. This important feature means that lint and dust are *blown away from the driven machine—not into it!* That keeps spools and bobbins from drying out, too.

The self-cleaning design of the "Clean-Flo" prevents lint pile-up on the motor itself. External surfaces are smooth and streamlined. There are no pockets or obstructions to catch lint. Even the fan is self-cleaning — and its powerful air flow not only blows lint and dust off the housing, but it increases motor cooling efficiency.

The Louis Allis "Clean-Flo" is the shortest enclosed textile motor on the market. It meets standard NEMA mounting dimensions — and can be interchanged with all NEMA standard motors. The motor is also available with conventional shaft extension in sizes and speeds your job requires.

For more information, get a copy of Bulletin 1850. Ask for it at your Louis Allis District Office — or write direct to The Louis Allis Co., 443 E. Stewart Street, Milwaukee 1, Wisconsin.

TE-111

LOUIS ALLIS

MANUFACTURER OF ELECTRIC MOTORS AND ADJUSTABLE SPEED DRIVES

For more data, write this page number on Reader-Service card. →

cut production COSTS 4 ways! ... with

1 SAVE by eliminating expensive spoilage!

2 SAVE by cutting handling costs, reducing damage and loss!

3 SAVE by reducing costly equipment repairs!

4 SAVE with the low initial and operating cost of the Mecho Air Guider!

Hundreds of finishing plants bless the simplicity of operating a Mecho Guider . . . no complicated counter-weights or linkages! The sensitive selvage finger points the way to important savings! It handles every imaginable fabric from the lightest to #8 duck; is used in plants handling woven and non-woven fabrics, semi-rigid plastics, artificial leather, rubber, felt and gauze. Constant cloth alignment is maintained at all times.

The precision-engineered accuracy of the Mecho Air Guider, guiding to within an eighth of an inch and ranging from 1 to 400 ypm, is unsurpassed! Stainless steel, acid and moisture-resistant units with sealed bearings are also available.

Mecho offers a valuable Guiding Service. Phone, wire or write for your catalog today. Learn how the Mecho Air Guider can save dollars for you.

GUIDER SPECIALTY COMPANY
431 W. Rock Ave.
New Haven 15, Conn.

available as a packaged unit producing up to 900 gals. per hr. or in knock-down units producing up to 30,000 gals. per hr. Variations in steam demand on the boiler system are eliminated by controlling the input of cold water. Hot water is drawn from a reservoir that is heated at a constant rate.

Circle T-35 on Reader-Service Card

Chain Sprockets

A stock line of double-strand roller chain sprockets for American standard chain is available from Morse Chain Co., Ithaca, N. Y.

Circle T-36 on Reader-Service Card

Water Conditioner

A water conditioner that eliminates and prevents corrosion and scale formation in boilers and water systems through application of nuclear-physics principles is available from Packard Water Conditioner, Inc., Box 719, Jacksonville, Fla.

Circle T-37 on Reader-Service Card

Dual-Purpose Switch

A lock-down illuminated push-button switch that can serve a dual purpose and cut down on panel space is announced by Micro Switch Div., Minneapolis-Honeywell Regulator Co., Freeport, Ill.

Circle T-38 on Reader-Service Card

Load Stabilizer

A load stabilizer designed for loads of case goods that can't be nested or tied together for handling with a fork truck has been announced by Lewis-Shepard Products, Inc., 125 Walnut St., Watertown 72, Mass.

Circle T-39 on Reader-Service Card

Water Deaerator

Improved accessibility, venting, and a new baffle system are featured in a water deaerator produced by L* A Water Softener Co., 1000 Airway, Glendale 1, Calif.

Circle T-40 on Reader-Service Card

Temperature Regulator

A self-powered unit actuated by a temperature-sensitive element controls temperatures in processing and closes automatically if the thermostatic unit is damaged. Marketed by Fulton Sylphon Div., Robertshaw-Fulton

Out Goes LINT · FLY TRASH from your SPINNING FRAMES and ROVING FRAMES Quickly • Economically

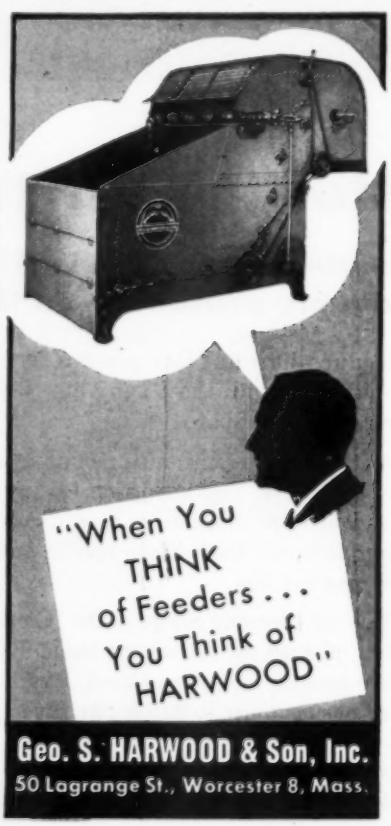
by using M-B AMOSKEAG PNEUMATIC ROLL PICKER

MODEL A-VT-A

A pneumatic tool especially designed for the specific purpose of REMOVING LINT and FLY from the top rolls of Spinning Frames and Roving Frames. Saves time and does a better job by substituting mechanical cleaning instead of laborious hand methods. Air deflector prevents fly and lint being blown into yarn when spinning. Adjustable valve permits any desired spindle speed.

Write for Literature

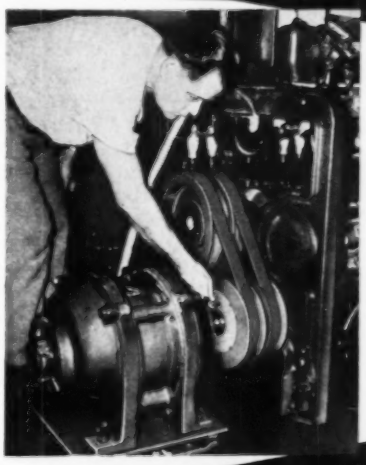
M-B PRODUCTS
46 VICTOR AVE., Div. 16
DETROIT 3, MICHIGAN



Geo. S. HARWOOD & Son, Inc.
50 Lagrange St., Worcester 8, Mass.

Now--

Pre-set the Pitch Diameter



COMPONENTS OF
DODGE SPINNING FRAME DRIVE

- Variable Sheave with Automatic Pitch Diameter Gage
- Taper-Lock Companion Sheave
- Slide Motor Base
- Dodge Sealed-Life Belts

No more "cut and try" with the new Dodge Variable Sheave

An automatic Pitch Diameter Gage, graduated in tenths of an inch, is mounted on the outside flange of the new Dodge Variable Sheave. A spiral line on the hub intersects with the gage dial as the flanges are moved in or out. Pitch diameter is read directly on the dial.

Quickly . . . accurately . . . easily . . . you get the pitch diameter you want with a one point adjustment. The variable sheave locks as a unit when tightened on the shaft, utilizing the Taper-Lock principle.

Single or double strand drive

The Dodge Variable Sheave is available for both single or double strand drives — utilizing R-Section Sealed-Life V-Belts in the single or double strand and W-Section in the single strand only. The new, higher ratings of these belts, which contribute to the larger load carrying capacity of the Dodge Variable Speed Drive, open new opportunities for drive economy — both in initial cost and in maintenance. All components — the new sheave, companion sheaves, belts and motor base — are available from stock. Write for full details.

DODGE MANUFACTURING CORPORATION, 1400 Union St., Mishawaka, Ind.

DODGE
of Mishawaka, Ind.

Call the Transmissioneer, your local Dodge Distributor. Factory trained by Dodge, he can give you valuable assistance on new cost-saving methods. Look in the white pages of your phone book for "Dodge Transmissioneer."

For more data, write this page number on Reader-Service card. →

100% FINANCING

for your new plant

...and at low, low interest rates!

Communities in our service area are prepared to roll out the red carpet for desirable industry to the extent of *totally financing* construction of the plant.

It's a unique plan for lease/purchasing that combines funds from non-profit community development corporations and the Pennsylvania Industrial Development Authority with first mortgages through private lending institutions.

West Penn Power is prepared to obtain information for you, in strict anonymity, about communities participating in this plan and, in addition, provide specific information on many other plant location factors to assist in your evaluation of WESTern PENNsylvania as a desirable location.

W E S T P E N N P O W E R

an operating unit of the WEST PENN ELECTRIC SYSTEM

Hello...

I'm Charlie Fife . . . of course every plant must have 100% financing of some kind; but, I'm sure you'll agree that this unique plan can solve a lot of problems, providing others, equally important, can be worked out as well.

Labor supply, for example. We have communities with excellent labor pools, both male and female, on which new industry can draw. But are the needed skills available at the right wage scale? Facts, figures and skill surveys from our files can tell you.

Because these problems are complex, West Penn Power maintains a staff of plant location specialists to assist in your evaluations. There is no charge for this professional service, of course . . . and you may be sure your confidence will be respected. Write today.

CHARLES M. FIFE, *Manager*
Area Development Department

WEST PENN POWER, Area Development Department, Cabin Hill, Greensburg, Pennsylvania TW-2

Yes, I'm interested in WESTern PENNsylvania:

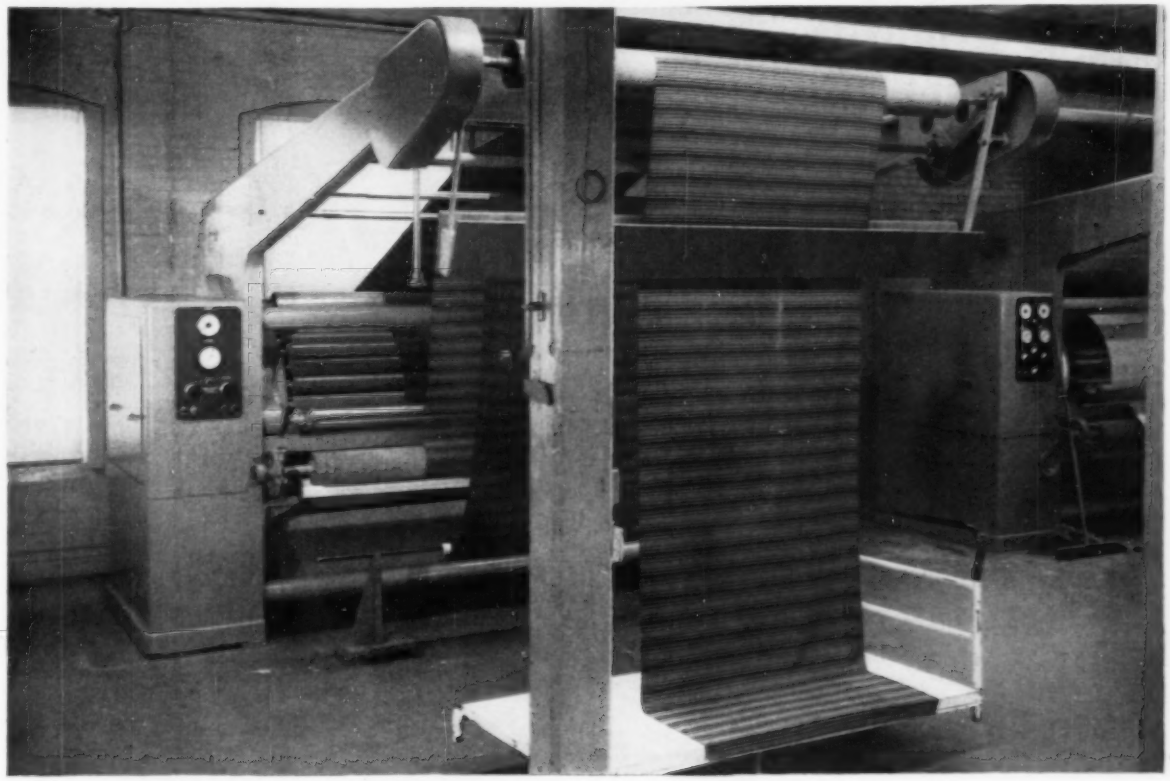
☐ Please contact me in strict confidence. ☐ Please send booklet, "Plant Location Services."

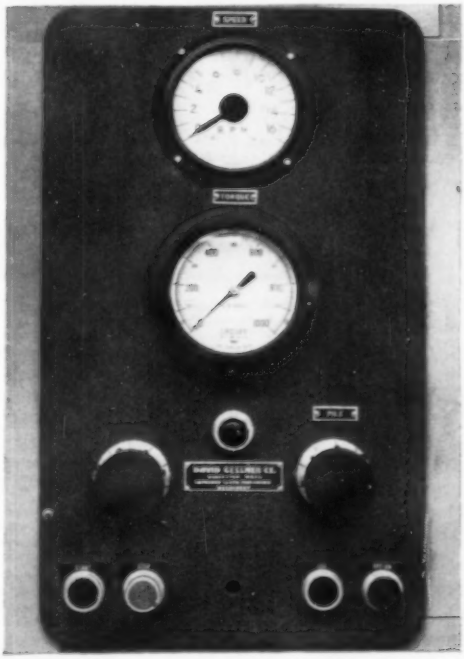
Name_____ Title_____

Company_____ Street_____

City_____ Zone_____ State_____

Long, lofty, fluffy nap two to four times as fast on this NEW Hi-Torc SINGLE ACTING NAPPER





Famous Hi Torc precision napping controls on this new Gessner single acting napper, write a new chapter in the wet napping of broadcloths, brush finish coatings, zibelenes and suedes. Dry napping, too, or straightening the fibres of such fine fabrics as cashmeres, vicunas, and fine woolens involves nothing more than setting the controls without fuss or guess work. The napper can also be set to produce a tucked finish.

This 24 roll, torque controlled machine, with two eight roll contacts, provides a total of 16 rolls which constantly work on the cloth. The combination of these features results in an increase of production three to four times that of a conventional machine.

DAVID GESSNER CO.

WORCESTER, MASS.

Southern Representative: Richard L. Bernard, 222 Piedmont Bldg., Greenboro, N. C.
Western Representative: E. G. Paules & Co., 1762 West Vernon Ave., Los Angeles, California
Canadian Representative: W. J. Westaway, Montreal, Quebec; Hamilton, Ontario

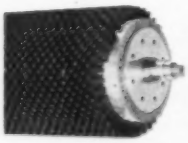
Gessner Improved Cloth Finishing Machines maintain a standard of performance to meet the exact requirements of your cloth finishing.

For more data, write this page number on Reader-Service card. →

YEARS
OF SATISFACTORY MILL SERVICE WITH JENKINS' METLKOR BRUSHES

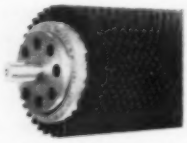
BRVM Motorized HERMAS Model Vertical Brushing Machine

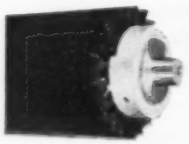
"The high quality standards set by our engineering department for brushes used in our machines are amply covered by Jenkins' METLKOR Brushes. They have stood years of satisfactory mill service for our customers and, of course, for us," stated Mr. Robert Simpson, Sales Representative of Hermas Division, Curtis and Marble Machine Company. Hermas has proven the efficiency of Jenkins' METLKORS — the long lasting brush that can be rebristled. If you have any standard or special brush problems, write us today



METLKOR brush used in Hermas Brushing Machine: precision made, accurately balanced. Filled with efficient long life Dupont "Tynex" Nylon. Available in fibre, hog bristle, etc

METLKOR brush used in Hermas Shearing Machine: tufted construction, ruggedly built, refillable when worn. Available in fibre, hog bristle, Dupont "Tynex" Nylon, etc.





METLKOR brush used in Hermas Beaming, Measuring and Brushing Machine: light weight, for long trouble free life. Available in fibre, hog bristle, Dupont "Tynex" Nylon, etc

Specify Jenkins' METLKOR
the original . . . the best *Metal Core* brush

METLKOR®
CYLINDER BRUSHES
and **LIFEWOOD®** WOOD BACKED BRUSHES

M. W. JENKINS' SONS, INC.
— Serving Industry for 80 Years —
531 Pompton Ave., Cedar Grove
Essex County, N. J. • CEnter 9-5150

Controls Co., Box 400, Knoxville, Tenn., the regulators are available in ¼- to 2-in. sizes.

Circle T-41 on Reader-Service Card

Tank Lining

A neoprene formulation that is suitable for on-the-job tank lining has been marketed by E. I. du Pont de Nemours & Co., Inc., Wilmington, Del. The lining is supplied in 50-in. sheets ¼ in. thick and is bonded to the tank with an adhesive cement. No curing is necessary.

Circle T-42 on Reader-Service Card

Leak Stopper

A liquid chemical additive that makes a leak stopper out of ordinary cement is available from Building Maintenance Div., Flex-rock Co., Philadelphia, Pa.

Circle T-43 on Reader-Service Card

Steel Valves

Bolted-bonnet steel valves in globe, angle, check, and high-pressure-drop designs with integral or renewable seats are available from Manning, Maxwell & Moore, Inc., Watertown, Mass.

Circle T-44 on Reader-Service Card

Liquid Meter

A meter that can be set to deliver the same quantity of liquid each time the delivery valve is opened has been produced by Neptune Meter Co., 19 W. 50th St., New York 20, N. Y. The meter can be set to deliver different quantities of material, and large numerals provide a visual check on the amount delivered.

Circle T-45 on Reader-Service Card

Centrifugal Pump

A general-purpose centrifugal pump, sold under the trade name Pryco, is being introduced by E. L. Price Pump Co., Sonoma, Calif.

Circle T-46 on Reader-Service Card

Hot-Water Generators

Package units designed to produce from 610,000 to 6,700,000 Btus. per hr. have been announced by Cyclotherm Div., National-U. S. Radiator Corp., Oswego, N. Y. The generators

Fine Printing...
For corrugated boxes with clean, sharp printing, better see H & D.
HINDE & DAUCH
Division of West Virginia Pulp and Paper Company

McGraw-Hill Mailing Lists Will Help You

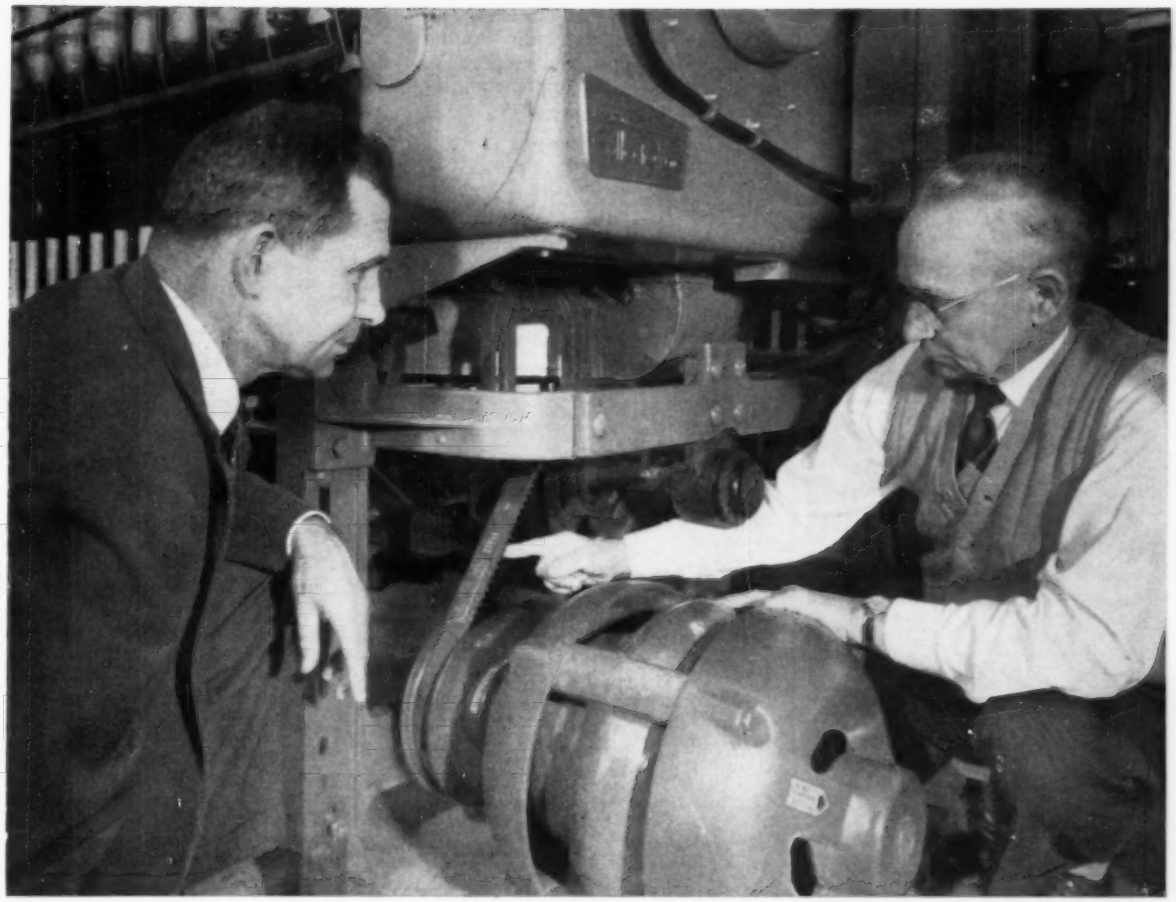
- Merchandise your advertising
- Conduct surveys
- Get inquiries and leads for your salesmen
- Pin-point geographical or functional groups
- Sell direct
- Build up weak territories
- Aid dealer relations

Direct Mail is a necessary supplement to a well rounded Business Paper advertising program.

Most progressive companies allocate a portion of their ad budgets to this second medium at the same time as they concentrate on the best business publications.

600,000 of the top buying influences in the fields covered by the McGraw-Hill publications make up our 150 mailing lists. Pick YOUR prospects out of our Industrial Direct Mail catalogue.

Write for your free copy.
It contains complete information.



© D.R. 1958

Mr. C. H. Stroupe of Howe Distributing Co. (left) is shown with spinning mill superintendent.

Dayton Variable Speed V-Belts Save $19.00 a Frame...Increase Output 7%

at Majestic Manufacturing Company, Belmont, N. C.

"By converting our 44 spinning frames to Dayton Variable Speed Drives, we increased production by 7% and have virtually eliminated downtime for speed changes," states the superintendent of a cotton spinning plant in Gaston County, North Carolina.

"We produce combed cotton yarns in counts ranging from 50's to 80's. On certain counts a 10% increase in front roll speed over our previous speeds has not affected the quality of our yarn and has made the job run equally as well. Previously, each time we changed pulleys the frame was down from 30 to 50 minutes.

"When we converted to Dayton Variable Speed Drives we eliminated our pulley-switching problem. Now we change speeds in a matter of seconds and production has jumped 7%!

"Each drive is equipped with a single Dayton Variable Speed V-Belt costing only about $14.50, in place of five standard belts.

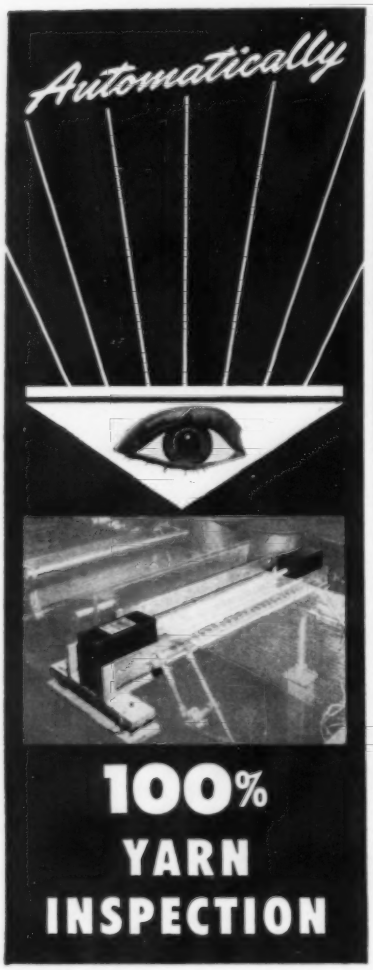
"Operating 24 hours a day, 5 days a week, Dayton V-Belts give us from 3 to 5 years service. As a result we keep only 2 to 4 belts in inventory. In any event, our Dayton Distributor, Howe Distributing Company, Inc., of Gastonia, N. C., will deliver replacements in 30 minutes."

Dayton Rubber

World's Largest Manufacturer of V-Belts

Consult the Yellow Pages of your telephone directory for the name of your nearest Dayton Distributor or write The Dayton Rubber Company, Industrial Replacement Division, Dayton 1, Ohio.

For more data, write this page number on Reader-Service card. →



...with the Lindly Automatic Yarn Inspector

Take all the guesswork out of yarn inspection with the new standard of yarn quality — THE LINDLY COUNT.

The Lindly Automatic Yarn Inspector counts every fault... provides a stop motion, set to your tolerances. You determine quality, measure it in terms of THE LINDLY COUNT.

Lindly Automatics pay for themselves in a short time, go on adding to your profits for years.

Inquire about the family of Lindly Automatics, built to cut your costs, boost your quality.

It Pays to Know LINDLY the Lindly Count

LINDLY & COMPANY, INC.
248 HERRICKS ROAD
MINEOLA, NEW YORK

are rated at 80% fuel efficiency and are designed for hot-water heating systems. The units are supplied to burn oil, gas, or a combination of oil and gas.

Circle T-47 on Reader-Service Card

Side-Hitch Tractor

An electric tractor that hitches to the side of the trailer for hauling extra-long or bulky objects is available from Moto-Truc Co., 1959 E. 59th St., Cleveland 3, Ohio.

Circle T-48 on Reader-Service Card

Arc Welders

Two combination a.c. and d.c. welders have been added to its Idealarc line by Lincoln Electric Co., Cleveland 17, Ohio.

Circle T-49 on Reader-Service Card

Outdoor Receptacles

Weatherproof outdoor receptacles for extension cords, lamps, drills, tools, etc. have been announced by Industrial Automation Corp., 2415 W. Montrose Ave., Chicago, Ill.

Circle T-50 on Reader-Service Card

Aftercooler

A large-capacity aftercooler is offered by Niagara Blower Co., 405 Lexington Ave., New York 17, N. Y. The apparatus is a self-contained unit for cooling and removing moisture from compressed air.

Circle T-51 on Reader-Service Card

Door Disconnect

A door disconnect for switch boxes that has advanced design and construction features is announced by Arrow-Hart & Hegeman Electric Co., Hartford, Conn.

Circle T-52 on Reader-Service Card

Solenoid Valve

A normally open solenoid valve suitable for gas, air, brine, solvents, or water has been marketed by Magnatrol Valve Corp., 73 Fifth Ave., Hawthorne, N. J. The valve is available in sizes from ¼ to 5 ins. and features quick-opening action and easily demountable operating elements.

Circle T-53 on Reader-Service Card

CONTINUED ON PAGE 186

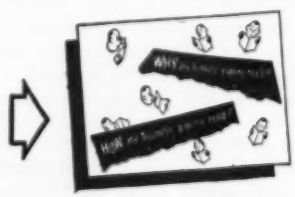
All business is specialized

...and nothing specializes on your business like your business paper

This smart business man spends his time where every sitzmark parks a prospect at his feet. He *specializes*. Your business is specialized, too... and so is your business paper. It's concentrated on *your* business. Both editorial and ad pages report what's new that's good... suggest new methods... gather in one place a raft of ideas on where-to-buy-what.

That's help you can't find concentrated into such quick reading time anywhere else! It's simple sense to read every page... every issue.

This business paper in your hand has a plus for you, because it's a member of the Associated Business Publications. It's a *paid* circulation paper that must *earn* its readership by its quality... And it's one of a leadership group of business papers that work together to add new values, new usefulness, new ways to make the time you give to your business paper still more profitable time.



A copy of this quick-reading, 8-page booklet is yours for the asking. It contains many facts on the benefits derived from your business paper and tips on how to read more profitably. Write for the "WHY and HOW booklet." Room 2710.

McGRAW-HILL PUBLISHING COMPANY
330 W. 42nd St., New York 36, N. Y.

One of a series of ads prepared by THE ASSOCIATED BUSINESS PUBLICATIONS

The finest textiles

in the world

are processed with

PROCTOR EQUIPMENT

From the smallest mills to the largest plants . . . wherever fine quality textiles are processed, Proctor equipment is on the job.

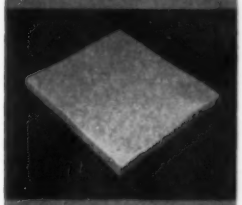
See for yourself how several textile products are served by many Proctor units—each precision engineered to assure high production with uniformity of product—plus profit-making economy.

A sampling of companies now using Proctor Textile Processing Equipment:

Allied Textile Printers, Inc.
Amerotron Corp.
Anglo Fabrics Co.
Joseph Bancroft & Sons Co.
Bigelow-Sanford Carpet Company
Burlington Industries, Inc.
Chatham Mfg. Co.
Cone Mills Corp.
Consolidated Bleaching Co.
Deering-Milliken & Co.
P. H. Hanes Knitting Co.
A. & M. Karagheusian
The Kendall Company
Jas. Lees & Sons Co.
Magee Carpet Co.
Mohasco Industries, Incorporated
Pellon, Inc.
Fairlawn Finishing Co.
Rock Hill Printing & Finishing Co.
Simmons Company
J. P. Stevens & Co., Inc.
United Merchants & Manufacturers, Inc.

All of these products are processed with Proctor Preparatory and Blending equipment in addition to the specialized machines listed below.

PRINT GOODS
- Loop ager
- Loop dryer—curer
- Tenter Housing
- Roller Curer

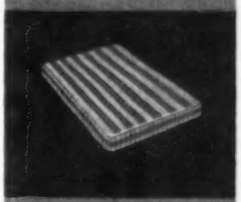


CARPETS
WOVEN AND TUFTED
- Carding
- Drying

KNIT GOODS
- Continuous Bleach Range
- Nylon Setting and Drying Equipment
- Loop dryer
- Redmanized® "shrunk-to-fit" finishing
- Electrocolorset for dyeing, setting, and finishing nylon hosiery

WOVEN SYNTHETICS
- Synthetic card
- Resin finishing ranges

BLANKETS
- Stock dryers
- Carding



MATTRESSES
- Completely automatic Batt Making System

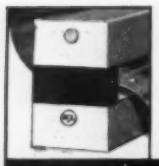
NON-WOVENS
- Web forming equipment
- Drying and curing equipment

Write today for free, illustrated literature. Learn more about how Proctor equipment can serve you.

Proctor®

PROCTOR & SCHWARTZ, INC. PHILADELPHIA 20, PA.
MANUFACTURERS OF TEXTILE PROCESSING MACHINERY AND INDUSTRIAL DRYING EQUIPMENT

For more data, write this page number on Reader-Service card. →



...GATEWAY TO SAFETY FROM TRAMP METAL

This mile of wasted cloth could have been saved by the RCA Metal Detector!

A mill recently suffered the loss of nearly a mile of valuable cloth in one run because a sharp fragment of embedded metal had gone undetected by human eyes! The loss was staggering—and could have been prevented. With RCA Electronic Metal Detectors on the job, both magnetic and non-magnetic metals are intercepted with equal ease. Metal to be detected can be smaller than a pinhead (1mm diameter)—so sensitive is this device especially developed for textile mills.

The RCA Electronic Metal Detector can find metal hidden in non-magnetic material traveling at speeds from 15 to 1000 feet per minute. As soon as the offending metal fragment or part rides through the Metal Detector's aperture, a warning device is triggered and the traveling material is stopped.

The RCA Electronic Metal Detector is practically foolproof, has no moving parts, requires no attendant to control it, and costs much less than you might suppose. Installed under the supervision of a trained RCA technician.

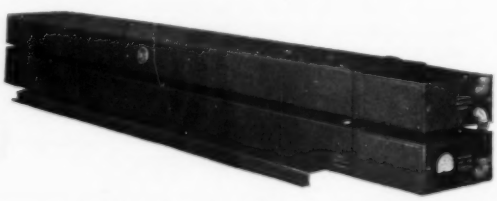
FREE literature on the RCA Electronic Metal Detector for textiles will be sent to you without obligation. Write to RCA Dept. ***F-140,*** *Building 15-1, Camden, N. J.*

Tmk(s) ®

RADIO CORPORATION of AMERICA

CAMDEN, N. J.

In Canada: RCA VICTOR Company Limited, Montreal



RCA ELECTRONIC METAL DETECTOR

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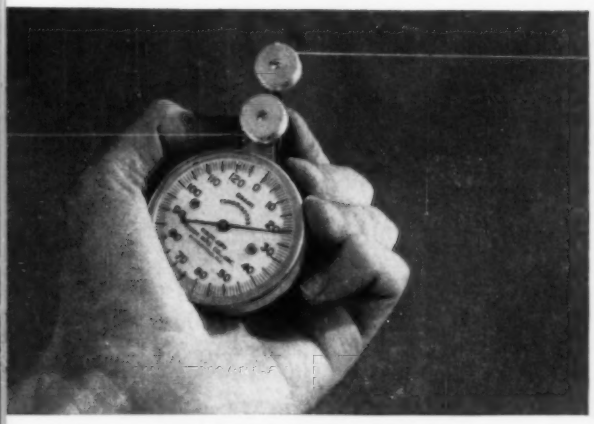
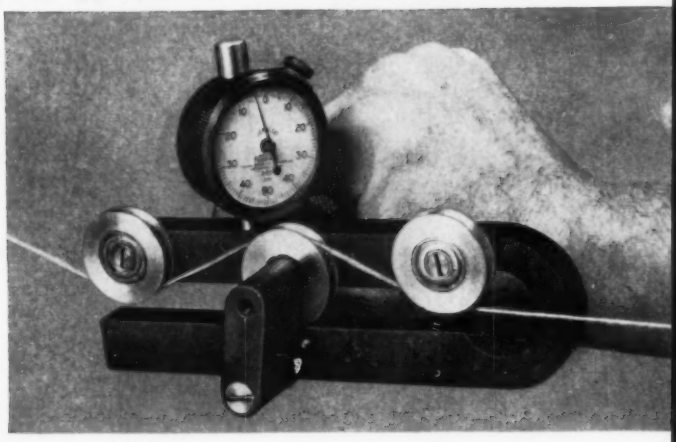
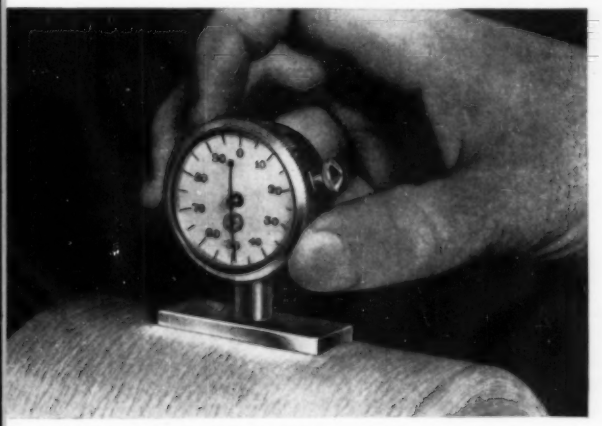
4 ways to Faultless Fabrics



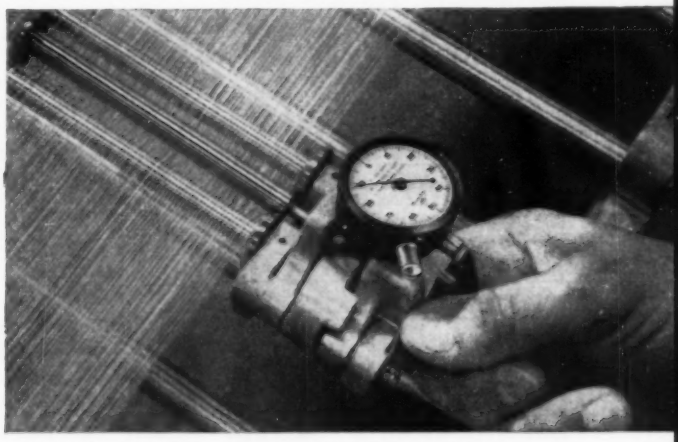
THE KIDDE-SIPP STANDARD TENSOMETER has a dampening device that gives steady readings without fluctuations. This pocket-size Tensometer is made in three ranges: up to 25 grams for fine denier yarns, 125 grams for most applications, or 250 grams for heavy yarns.



THE KIDDE-SIPP HEAVY DUTY TENSOMETER is available with tension ranges of 10, 20, 30, 50 and 100 pounds. It permits the quick, accurate measurement of tensions in a strand of thread, yarn, cord or wire. It is durable, and retains its accuracy.



THE KIDDE-SIPP DENSIMETER insures equal density on packages, prevents "sloughing off" on cops and quills. It may also be used with a Tensometer to assure packages of uniform density. Operation is extremely simple, and the dial is clear and easy to read.



THE KIDDE-SIPP SLASHER TENSOMETER permits the operator to check for equal tensions in all yarn sheets, no matter how many creel beams are used. Tensions can be compared, and beam let-offs adjusted to even out differences.

Kidde-Sipp Tensometers

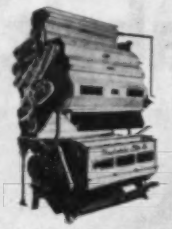
Here's how you can get rid of costly seconds and rejects due to faulty tension: Use a Kidde-Sipp Tensometer. One of these tension-measuring instruments is ideal for setting and maintaining proper tensions for every operation.

For prices and complete information, write to:

TRICOT AND RASCHEL MACHINES • TRICOT WARPERS • HORIZONTAL WARPERS • BEAMERS
CREELS • SLASHERS • WINDER-REDRAWS • TENSOMETERS • TENSION COMPENSATORS

Kidde TEXTILE MACHINERY CORPORATION — BLOOMFIELD, NEW JERSEY

The word KIDDE is the trademark of Walter Kidde & Company, Inc., and its affiliated companies.



"WITH LUBRIPLATE LUBRICANTS—NO BEARING LOSS FOR AN ENTIRE SEASON"

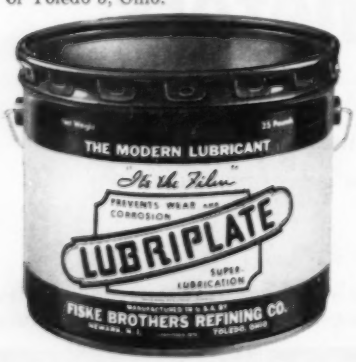
so states a well-known manufacturer of Cotton Gin and Oil Mill Machinery

"We have gone to great expense in checking lubricating greases out in the field and find the best to be LUBRIPLATE. Over a season's test we found that out of all the greases tried LUBRIPLATE was the only one that did stand up under all operating conditions throughout a season's run without loss of a single bearing."

REGARDLESS OF THE SIZE AND TYPE OF YOUR MACHINERY, LUBRIPLATE GREASE AND FLUID TYPE LUBRICANTS WILL IMPROVE ITS OPERATION AND REDUCE MAINTENANCE COSTS.

LUBRIPLATE is available in grease and fluid densities for every purpose . . . LUBRIPLATE H. D. S. MOTOR OIL meets today's exacting requirements for gasoline and diesel engines.

For nearest LUBRIPLATE distributor see Classified Telephone Directory. Send for free "LUBRIPLATE DATA BOOK" . . . a valuable treatise on lubrication. Write LUBRIPLATE DIVISION, Fiske Brothers Refining Co., Newark 5, N. J. or Toledo 5, Ohio.



CHECKLIST for SLASHERS

Gives Better-Slashed Warps

• If slashers aren't inspected and repaired often, parts become worn and a general overhaul is necessary. Modern slashers that run up to 100 yds. per min. call for constant care. The following checklist will help you keep your slashers in good condition—

By JOHN E. ALLEN

WITH THE MANY AUTOMATIC CONTROLS on slashers, it's easy to forget the mechanical condition of the basic machine and just let it run. But maintenance of machine parts is just as necessary as with old slashers.

For example, yarn beams for the loom require the same care as always. Beams with loose heads; lost nuts, bolts, and rods; and bent arbors make high and low selvages that cause excessive yarn breakage at looms. And beams with rough barrels and heads and dirty heads inside result in excessive yarn waste at looms.

Many other worn and defective slasher parts and motions shown in the following checklist cause yarn damage. Here is the trouble they cause.

Worn bearings
Uneven tension on the beamed yarn
Stretched yarn

Loose, Dirty Drive Belts
Belt slippage and lost production

Badly Covered Calender Roll
Uneven pull on the sheet of yarn

Bent Comb Dents
High and low places on the beamed yarn

Misaligned Creels
Uneven pull on the yarn from section beams
Stretched yarn
Excessive waste

Defective Yardage Counters
Variation in the length of cuts on loom beams

Misaligned Cylinders
More power is required to drive cylinders

Leaking Cylinders
Lost steam
General dirty conditions

Dirty, Oily, Worn Frictions
Stretched yarn
Yarn elasticity is lost

Worn Head-End Gears
Yarn may be stretched

Hoods Dirty Inside
Condensation drips dirty water on the yarn

Immersion Rolls Not Level
Uneven size pickup

Immersion-Roll Bearing Worn
Uneven size pickup
Dirty yarn

Grooved Lease Rods
Chafed yarn

Bent Lease Rods
Unevenly built warps

Wrong-Length Pressure Roll
High and low selvages
Cut yarn

Pressure Roll Not Level
Unevenly built warps

Rough Pressure Roll
Cut yarn

Size Boxes Not Level
Variation in size pickup

Leaking Size Boxes
Loss of size
Dirty conditions

Worn Size-Kettle Bearings
Kettle breaks down

Size-Kettle Cover off
Excessive steam is needed to cook size

Leaking Size Pump
Loss of size
Dirty conditions

Worn Gears in Size Pump
Uneven pumping of size

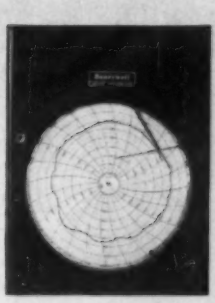
Worn Squeeze-Roll Covers
Uneven size pickup

Rough Edges on Squeeze Rolls
Size is wasted
Dirty conditions

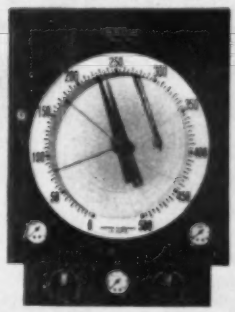
Squeeze Rolls out of Plumb
Size does not penetrate yarn

Leaking Valves
Loss of steam
If open coils are used in the size box, size is thin
Poorly sized warps

Integral Cam Programmer . . . Enables complete 24- or 168-hour program to be precast. Electric or pneumatic control.



Thermometer Recorder . . . Available with either one or two pens, and wide choice of control systems.



***ElectroniK* Circular Chart Recorder . . . Has large 28" indicating scale . . . is available with electric or pneumatic control.**

Self-Contained Temperature Controller . . . Has remote bulb thermal system, and electrically operates control valve to maintain a pre-set temperature level.

Measure and control process temperatures efficiently — economically

. . . *with* HONEYWELL *instrumentation*

From the broad Honeywell line you can select the form of temperature measurement and control that's exactly right for any process . . . from highly versatile, multi-function instruments to simple, inexpensive, single purpose instruments.

You stand to profit by the completeness of the Honeywell line—the world's largest selection of temperature controls. You get instruments that are *custom-designed* for your own special requirements. No need to overequip, or "stretch" instruments to meet applications they're not intended for. And you save money in purchasing, installation and maintenance by placing undivided responsibility for all your instruments with this single, dependable source.

For a discussion of your particular requirements, call your nearby Honeywell field engineer. He's as near as your phone.

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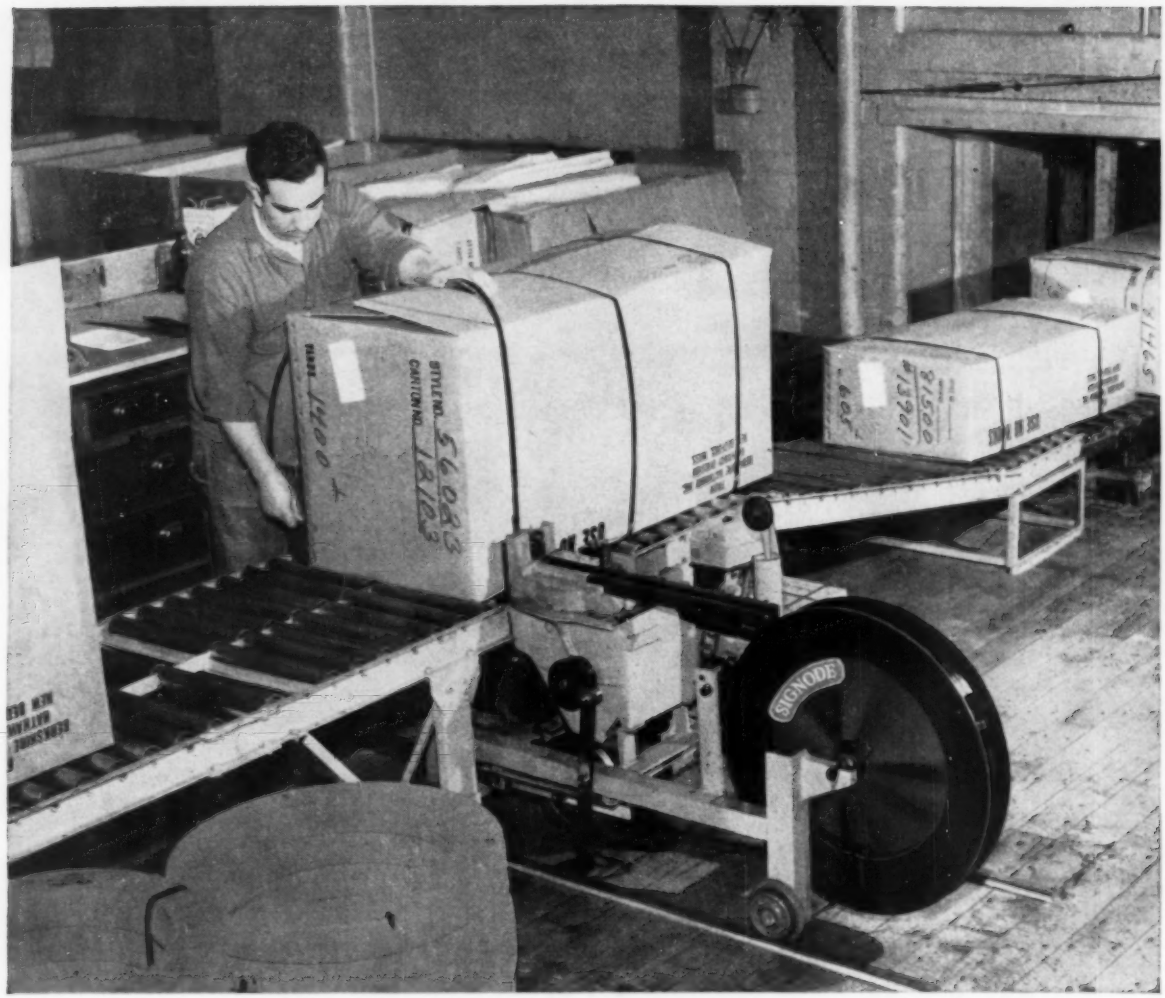

Signode PSM saves 8 man-hours per day

The Signode Power Strapping Machine applies each strap around these textile cartons in seconds...with right tension every time. The operator needs only seconds more to re-position the carton and feed the next strap.

Savings in time come to eight man-hours per day—equivalent to many times the Signode lease cost.

The Signode man can show you how strapping can save you money in many ways...with denser bales that save space and freight...with ways to eliminate wasted strap ends by using continuous feed. He can show you how to dress up your bales and cartons with seals that bear your trademark...show you new Signode machines, including air and electric power strapping tools and power strap feeders.

Make your product cost less to handle, store, ship, and receive. Call the Signode man near you, or write:

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In Canada: Canadian Steel Strapping Co., Ltd., Montreal • Toronto

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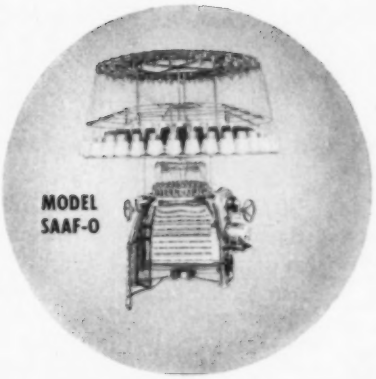
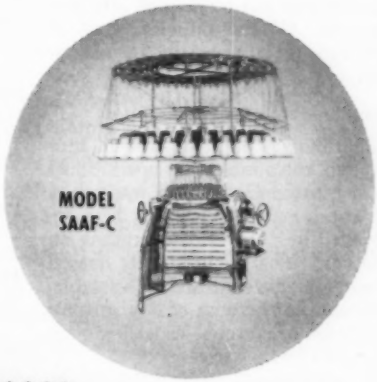


These features make SUPREME

the latest word in modernized, low-cost knitting
of automatic, variable striped, patterned or solid jersey
with or *without* knit-on simulated rib trim
and draw thread section separators



★ **HIGH SPEED PRODUCTION**

Large number of feeds, rugged construction and stationary yarnstand give you vari-striped and patterned fabrics at unprecedented rates. Standard 26" machine has 32 four color striping boxes — 32 three position pattern wheels—32 automatic pattern placers.

★ **TREMENDOUS VERSATILITY**

Striping boxes, pattern wheels and placers on every feed let you pour out an infinite variety of striking, multi-colored fabrics — with pattern inserts twice the size previously possible. Knit a wide variety of fabric construction and textures with virtually any type of natural or synthetic yarn.

★ **HIGH QUALITY AT LOW COST**

Knitting efficiency and quality are insured by these ingenious new features—128 cone, "step-design" (Pat. Pend.) yarnstand, new knitting elements system, new striping box with easy, manual setting, new pattern placer with slideable studs for fingertip control and new, scissor-type, synchronized "no-waste" cutters.

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94-02 104th STREET, OZONE PARK 16, N. Y.
Southern Representative and Showroom
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Ask For This FREE Booklet On
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The PAYD Plan

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Cut Rove, Sliver, or Filament Yarn into

UNIFORM LENGTHS

This machine cuts rove, sliver, and continuous filament yarn into uniform lengths for subsequent blending or other processes.

●

The length of cut may be quickly varied by making adjustments using a variable speed motor or by changes of sprockets.

●

Up to 600 pounds an hour, depending on length of cut, is standard.

●

Write for descriptive folder.

TAYLOR-STILES & COMPANY

15 Bridge Street Riegelsville, N. J.

Getting Work Cooperation From Maintenance Employees

Improving maintenance effectiveness is a problem of providing proper leadership. And leadership is the ability to get workers interested in doing the job because they want to, not because they have to. The supervisor who inspires his subordinates with job enthusiasm and obtains their willing cooperation does so by leadership.

In the worker-leader relationship, the worker normally provides technical skill, tools, and experience in a chosen work. The leader in turn provides direction and standards of performance. And through good judgment, he gets the work done.

Most Workers Are Skilled

Most maintenance employees have spent many years in learning their trades; as a result, they have developed a relatively high degree of proficiency and are anxious to do their jobs well.

Likewise most maintenance supervisors possess highly specialized skills in one or more trades; and over a period of years, they have picked up some of the traits of good leadership. For this reason, they have been assigned to supervisory positions. From this acceptable-leadership situation, it is possible to move to an improved-leadership situation.

Leadership can be divided into two categories: (1) the military point of view and (2) the business point of view.

Institutional Leaders Are Direct

The military point of view in turn has two categories: (1) institutional leadership and (2) personal leadership.

Institutional leadership is best exemplified by a policeman standing on a corner. This policeman is obeyed because of the institution he represents and not because of any personal knowledge or personal-leadership characteristics he may have.

A maintenance worker usually responds to this type of leadership by doing exactly what he is told—no more and no less. Therefore the leader must provide very comprehensive and definite instructions. The worker has no choice; he delivers the goods as directed.

Personal Leadership Is Better

Personal leadership is best illustrated by the captain of an amateur athletic team. A worker normally responds to this leadership with a little more enthusiasm than with institutional leadership. He is not limited by his instructions; therefore he demonstrates initiative and imagination.

The leader for his part must accept what his workers deliver in response to his general instructions and guidance. Since his instructions are not as specific as the institutional leader's, the results are not as precise. Therefore it becomes his job to provide guidance and control for the imagination and energy of his workers.

In instances of both institutional and personal leadership, the job is accomplished; however, supervisors who provide personal leadership at the contact level with workers accomplish the job a little more smoothly, and the over-all effectiveness of the worker group is greater.

Business Leader Has Three Skills

Leadership from the business point of view involves three groups of skills: (1) technical, (2) human, and (3) conceptual.

Technical skill implies an understanding of and proficiency in a specific activity, particularly one involving methods, processes, or procedures. Technical skill involves specialized knowledge, analytical ability within that specialty, and facility in the use of the special tools and technique of the specific activity.

Human or personal skill is the leader's ability to work effectively as a group member and to build cooperative spirit within the men he leads. Human skill is concerned primarily in working with people.

Conceptual skill involves the ability to see the enterprise as a whole. It includes recognizing that the various functions and segments of the organization depend on one another and how changes in one part of the organization affect all others. It is the sensing of the organization as a whole and the total organization relevant to it.

CONTINUED ON PAGE 186

Performance features of **TORRINGTON CAM FOLLOWERS**

Heavy sectioned outer race to absorb high rolling and shock loads.

Integral stud for cantilever mounting, case-hardened, with tough core for high strength to withstand shock loads.

Easily relubricated at either end or through cross hole in stud. Ends accommodate standard drive grease fittings or plug seals.

Full complement of small diameter rollers for maximum radial capacity and efficient anti-friction performance.

Races precision ground for even load distribution and uniform low end play.

Built to "FOLLOW THROUGH" under high shock loads

Every feature of the Torrington Cam Follower is designed to insure efficient performance and long service life under heavy rolling and shock loads in cam or track follower service.

Precision made throughout, Torrington Cam Followers are available in sizes from ½" to 2¼" OD. Special surface finishes such as chrome and cadmium plate or oxide black can be provided.

Our engineering staff will be glad to work with you in applying these reliable units to your cam-controlled or track-type equipment. You can depend on Torrington Cam Followers to "follow through" on the job because every element is designed for ultimate capacity. *The Torrington Company,* Torrington, Conn.—and South Bend 21, Ind.

TORRINGTON BEARINGS

District Offices and Distributors in Principal Cities of United States and Canada

NEEDLE • SPHERICAL ROLLER • TAPERED ROLLER • CYLINDRICAL ROLLER • BALL • NEEDLE ROLLERS • THRUST

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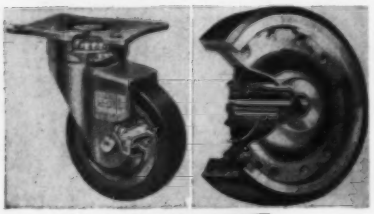
Investigate the Advantages of

DARNELL
CASTERS AND WHEELS



check these special features

RUBBER TREADS . . . a wide choice of treads suited to all types of floors, including Darnelloprene oil, water and chemical-resistant treads, make Darnell Casters and Wheels highly adapted to rough usage.

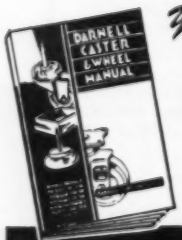
RUST-PROOFED . . . by zinc plating, Darnell Casters give longer, care-free life wherever water, steam and corroding chemicals are freely used.

LUBRICATION . . . all swivel and wheel bearings are factory packed with a high quality grease that "stands up" under attack by heat and water. Zerk fittings are provided for quick grease-gun lubrication.

STRING GUARDS . . . Even though string and ravelings may wind around the hub, these string guards insure easy rolling at all times.

. . . for the special requirements of

the TEXTILE INDUSTRY



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MANUAL

IS READY—

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DARNELL CORPORATION, LTD.
DOWNEY (LOS ANGELES COUNTY) CALIFORNIA
60 WALKER STREET, NEW YORK 13, NEW YORK
36 NORTH CLINTON STREET, CHICAGO 6, ILLINOIS

Skills Must Be Balanced

Normally the first-line maintenance supervisor possesses a high degree of technical skill, a moderate degree of personal skill, and only a small amount of conceptual skill. The middle-management supervisor possesses a relatively high degree of personal skill and limited amounts of technical and conceptual skills. The top-level maintenance manager requires a high degree of conceptual skill, a relatively high degree of personal skill, and enough technical skill to develop a proper understanding of the maintenance operation.

It is essential that the maintenance supervisor, regardless of his level, achieve the proper balance among these three types of skills. The assistant foreman must possess a high degree of technical skill because his workers are looking to him for guidance and direction; he must have a certain amount of conceptual skill to properly motivate his people; and he must have a high degree of personal skill to maintain satisfactory interpersonal relationships with all of his employees.

If he moves up the supervisory ladder, he must change the balance of his skills to meet the changed requirements of his assignment.

It is not possible for plant engineers or maintenance superintendents to provide proper leadership for their work groups merely by possessing pure conceptual skills or pure technical skills. They must maintain an adequate balance of skills that include human or personal skills.

Supervisor Can Improve Himself

Many tools are available to the supervisor who wants to improve his personal skills to gain the cooperation of his maintenance workers, and there are many things a company can do to assist the supervisor in achieving this goal. Most of these tools include communications:

1. Regularly scheduled supervisory meetings
2. Special meetings of worker groups to explain particular tasks
3. Use of company newspapers to credit maintenance-department achievements
4. Employee-counselling programs
5. Presentation of service pins, suggestion awards, and other employee recognition items

In addition to improved communications, several other tools help the supervisor improve the worker's effectiveness:

1. Competitive programs
2. Special awards for safety, housekeeping, or any other subject that needs highlighting
3. Suggestion programs. *Wallace E. Fore, North American Aviation, Inc., at the Ninth Plant-Maintenance & Engineering Conference*

EQUIPMENT & SUPPLY NEWS

CONTINUED FROM PAGE 176

Wheel Brake

A wheel brake for its 4- and 5-in. casters is now available from The Bassick Co., Bridgeport 2, Conn.

Circle T-54 on Reader-Service Card

Power Sweeper

A power sweeper with a 15-hp. gas engine and three-speed transmission and reverse is announced by Wilshire Power Sweeper Co., Dundee Ave., Elgin, Ill.

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Limit Control

A controller that prevents processing temperatures from getting out of hand has been announced by Partlow Corp., New Hartford, N. Y. The instrument can be set to any desired temperature and will shut off the source of heat if that temperature is exceeded. A fail-safe feature prevents process start-up if the controller is not in working order.

Circle T-56 on Reader-Service Card

Electronic Counter

An electronic counter designed for all industrial counting applications is available from Machinery Electrification, Inc., Northboro, Mass.

Circle T-57 on Reader-Service Card

Industrial Wheel

A wheel for materials-handling equipment that has a load capacity up to 2,000 lbs. is announced by Green Industries, Inc., New York International Airport, Jamaica 30, N. Y.

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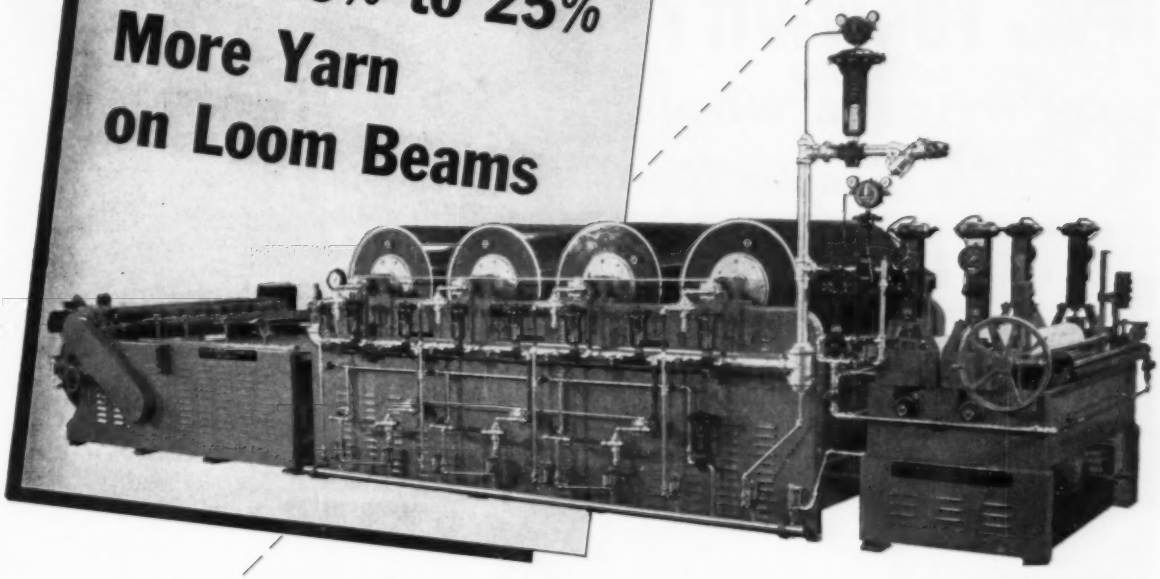
This Cocker Slasher Puts 20% to 25% More Yarn on Loom Beams



. . . Available with the Cocker Compensating Beam Drive (2 motor or 4 motor) to produce hard, even beams with 20% to 25% more yarn per loom beam — at sustained speeds of 150 yards per minute at a production rate of over 1400 lbs. per hour. Air operated ironing compressor roll with finger tip pressure control, and variable D. C. Drive maintain even pressure and tension at all times.

All operations are under push button control at all times, with indicators to show how the work is running. Air operated carrier and delivery rolls and many other features make this the most efficient and convenient slasher you can buy.

Cocker slashers will handle all types of yarns. Built with 5 to 13 cylinders up to 144" in width. Call on Cocker for full information or engineering service.

THE LEADER COCKER AROUND THE WORLD

Plant and Offices at Ranlo, N. C. (Mailing address, Gastonia, N. C.)

Machine and Foundry Co., Gastonia, N. C.

WORLD'S LARGEST DESIGNERS AND BUILDERS OF COMPLETE WARP PREPARATORY EQUIPMENT

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Identification
on All Synthetics—Blends

Plus FUGITIVITY
UNMATCHED
ON NYLON & WOOL!

The Amazing New

SOLUTINTS

SOLUTINTS are a series of fugitive tints that provide identification, lubrication, and improved processing of all natural and synthetic fibres. In addition to giving *maximum tinctorial strength* — SOLUTINTS combine controlled moisture retention with *improved scourability*.

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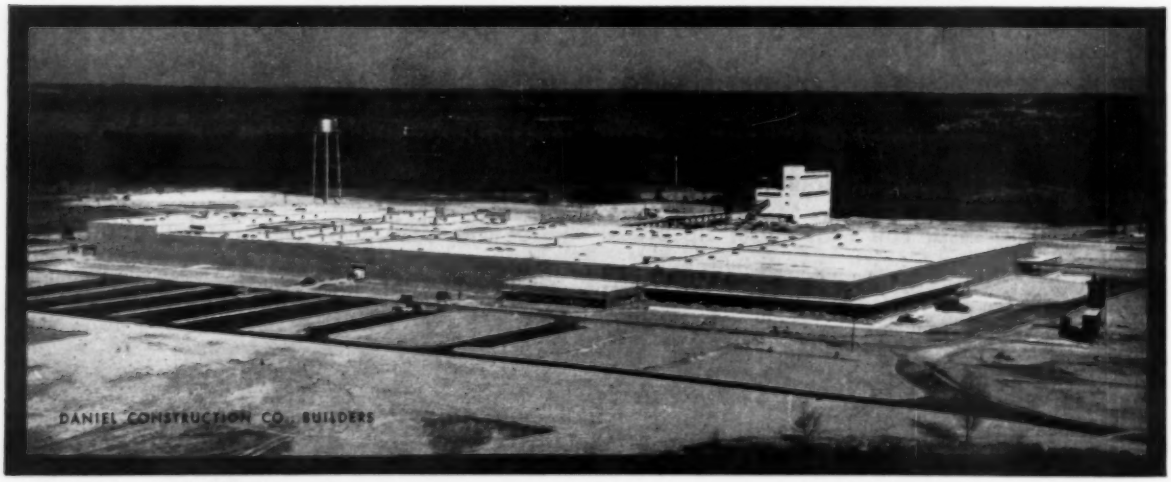
BORNE CHEMICAL COMPANY, INC.
82 Years of Textile Know-How
Formerly **BORNE, SCRYMSER COMPANY**
Elizabeth, N. J. • Charlotte, N. C.

LOCKWOOD GREENE PROJECTS IN...
TEXTILE FINISHING

Lockwood Greene has completed projects in the Textile Industry valued at over three-quarter billion dollars and offers highly specialized engineering services in all phases of Textile Manufacturing including Textile Finishing.



Kendall Mills,
Finishing Division of Kendall Co.,
Bethune, S. C.
A new cotton finishing plant, finishing the cloth produced by The Kendall Cotton Mills Division, which operates seven plants in North and South Carolina. It has approximately 300,000 sq. ft. of manufacturing and storage space.

CONTINUOUS MANAGEMENT SERVICES FROM SITE SELECTION TO PLANT COMPLETION

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OVER A CENTURY OF INDUSTRIAL PLANT EXPERIENCE • BROCHURE AVAILABLE UPON REQUEST

at Woodside Mills, Liberty, South Carolina...

Stainless steel is a "must" for dye equipment

Corrosive dye chemicals, including caustic soda, muriatic acid, and sulfuric acid, are in contact with this 4-kier beam and package dyeing machine at Woodside Mills. But the equipment fights off corrosion, even at welds, because it is made of Armco 18-8 ELC Stainless Steel.

"Stainless steel is tops for beam and package dyeing," says Mr. Walter A. McJunkin, Overseer of Dyeing at Woodside Mills, Liberty, South Carolina.

"With stainless steel dye machines we obtain best dyeing results—have fewer work stoppages due to equipment troubles—and lose very little time in cleaning between dye runs."

ELC Stainless For Weld Protection

To insure extra life in contact with corrosive dye chemicals, the 4-kier beam and package dyer above was made from Armco 18-8 ELC (Type 304L) Stainless Steel. Because this special grade contains very little carbon (.03 max.), carbide precipitation adjacent to weld beads is minimized. This means that weld areas fight off corrosion just as well as the rest of the stainless steel, even at dye machine operating temperatures.

If corrosion alongside welds is a major maintenance problem in your mill, ask for information about Armco 18-8 ELC and its even more corrosion-resistant companion grade—18-12 Mo ELC Stainless Steel. For more data, just fill in and mail the coupon.

ARMCO STEEL CORPORATION
1917 Curtis Street, Middletown, Ohio

Send me more information about Armco ELC Stainless Steels.

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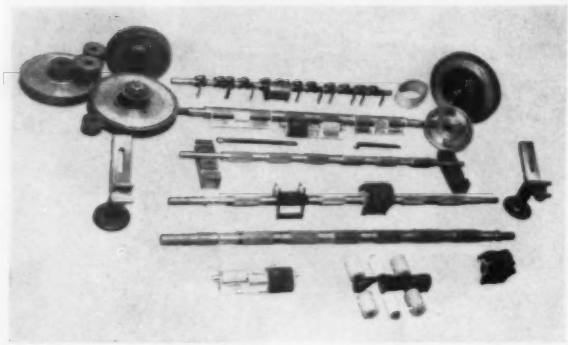
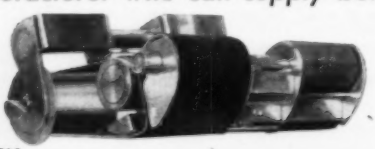
Investigate DIXON'S CHANGEOVER PLAN:

complete from the roller beam up!



Dixon Corporation assures you quicker returns on your changeover investment and offers you a changeover plan that is complete in every way *from the roller beam up:* new front, middle and back steel rolls, cradles, top rolls saddle assemblies, roll stands, brackets, gears, etc. The Dixon Changeover Plan can be continued in stages, or completed in one installation.

Whatever your Changeover needs may be:—
See **DIXON** *first,*
the only manufacturer who can supply both



DUO ROTH

and **CASABLANCAS**

Middle Roll Drafting Assemblies

Dixon rolls have RULON bearings — no lubrication required! Hence, no oil leakage, no down time for relubrication, no yarn contamination, no repairing. Save time, save money — get lower costing, longer lasting Dixon rolls for *both* Duo Roth and Casablancas spinning.

DIXON CORPORATION

BRISTOL RHODE ISLAND

Southern Sales: R. E. L. Holt, Jr., and Associates, Inc.
Box 1319, Greensboro, N. C. and Lawyer's Office Building, P. O. Box 321, Greenville, S. C.

Manufacturers of Drafting Devices since 1876

NEWS ABOUT SUPPLIERS

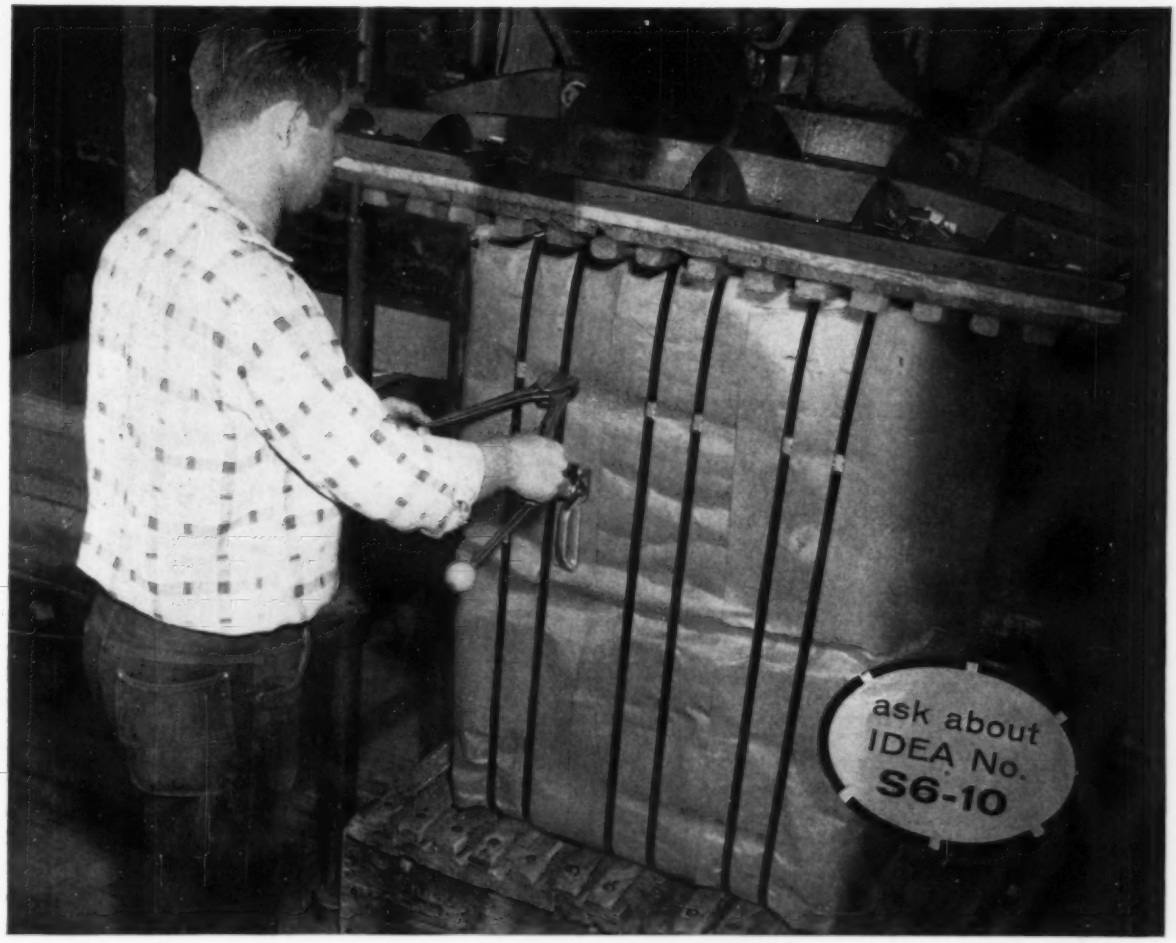
ALLIED CHEMICAL & DYE CORP., New York,—Has changed its name to Allied Chemical Corp. . . . **ALLIS-CHALMERS MFG. CO.**, Milwaukee, Wis.—Has named A. P. Bowman manager of the Milwaukee district office and James I. Onarheim to the new post of manager of utility sales, Milwaukee district. . . . **AMERICAN VISCOSE CORP.**, New York, N. Y.—Has promoted Louis Cramer to assistant manager of the Charlotte, N. C., district sales office. . . . **WILHELM BARFUSS, GMBH**, Wilhelmshaven, Germany—Has announced the opening of the company's first sales offices in the United States. Sales will be handled by the newly established Barfuss Corp. of America, 286 Fifth Avenue, New York, N. Y. Showrooms are also being established in New Jersey.

LAWRENCE J. HORAN (left) has been named manager of the Southeastern Div. of National Starch Products, Inc., Atlanta, Ga. He will be responsible for over-all operation and supervision of textile and other sales and technical service groups. H. B. BLADON (center) has been appointed to the executive staff of H. F. Livermore Corp., Boston, Mass., as general sales manager. He will supervise sales in the U. S. and Canada. His headquarters will be in Greenville, S. C. T. B. MANHEIM (right) has been named to the newly created position of supervisor of chemical-specialties sales for Ciba Co., Inc., New York, N. Y.

BORDEN CHEMICAL CO., New York, N. Y.—Has promoted J. Dersch to general production manager of the coatings and adhesives department. His headquarters will be at Peabody, Mass. . . . **CELANESE CORP. OF AMERICA**, New York, N. Y.—Has appointed C. D. Francis, Jr., director of labor relations. M. Snow has been appointed assistant secretary of the company. M. D. Ewing has been named director of new-product merchandising. . . . **CHEMSTRAND CORP.**, Decatur, Ala.—Has promoted T. V. Shumeyko to product-information manager for the company. Walter Stump has been named leader of the dyeing and finishing group of the Technical Sales-Service Dept. C. H. Apperson has been promoted to a group leader in the Research & Development Div.

CLEVELAND CRANE & ENGINEERING CO., Wickliffe, Ohio—Has broken ground for a Research and Development Building. The plant, scheduled for completion in June, will include an air-conditioned engineering department and a complete shop for testing equipment. . . . **COLTON CHEMICAL CO., DIV. OF AIR REDUCTION CO.**, Cleveland, Ohio—Has appointed F. E. Evers controller. . . . **CUTLER-HAMMER, INC.**, Milwaukee, Wis.—Has appointed J. M. Cook vice president in charge of marketing. P. S. Jones has been appointed senior vice president. . . . **DAYTON RUBBER CO.**, Dayton, Ohio—Has named J. D. Hershey director of public relations. . . . **DISOGRIN INDUSTRIES, INC.**, Jamaica, N. Y.—Has moved its plant and offices to 510 S. Fulton Ave., Mount Vernon, N. Y.

DODGE MFG. CORP., Mishawaka, Ind.—Has promoted A. T. Bodle to the position of consulting engineer. J. Chung has been promoted to chief engineer, and D. P. Lower has been promoted from assistant chief engineer to manager of engineer-



Work with your AIM*. . . William L. Barrell Co., Inc., does . . .

New Acme Steel Strapping Tool speeds baling

Acme Idea Man E. S. Lumpkin aids the Belle-Vue plant and many other companies with materials handling problems.

THE BELLE-VUE PLANT OF THE WILLIAM L. BARRELL CO., INC., HILLSBORO, N. C., with the help of their Acme Idea Man, sought a way to make baling their fabrics faster and easier. (Idea No. S6-10)

The new B-5 Stretcher proved a good answer. The bales are still processed in the same way—enclosed with asphalt impregnated paper, loosely encircled with steel strapping, and then compressed. But then the B-5 takes over, and makes the tensioning operation much easier and noticeably faster. Using this method, one man produces about 40 bales a day—all strong and secure.

Workers like the new B-5 Stretcher, too. This light, strong tensioning tool can be used in most any application and works equally well in any operating position.

***Work with your Acme Idea Man.** He is aware of the latest time and money-saving solutions to materials handling problems. Call or write Dept. TAS-58, Acme Steel Products Division, Acme Steel Company, Chicago 27, Illinois. In Canada, Acme Steel Company of Canada, Ltd., 743 Warden Ave., Toronto 13, Ontario.

ACME STEEL **STEEL STRAPPING**

For more data, write this page number on Reader-Service card. →

CASH IN ON CASHMERIZED

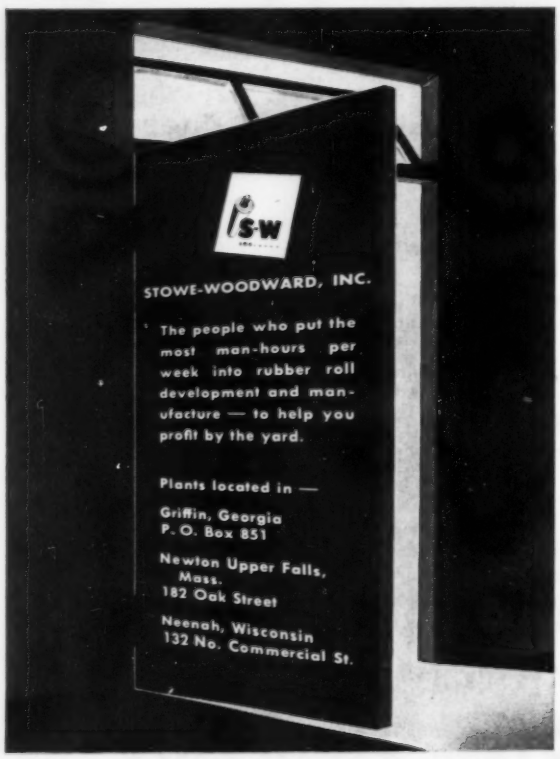
Your fabric and garments are worth more when they have the look and feel of cashmere. And you can get this CASHMERIZED effect for only pennies, when you use the

AINSLIE BRUSHER. Send us samples of your fabric—and we'll be glad to process it, and send it back to you CASHMERIZED. You'll be delighted with the result!

ASK ABOUT OUR RENTAL-PURCHASE PLAN.

AINSLIE KNITTING MACHINE CO.

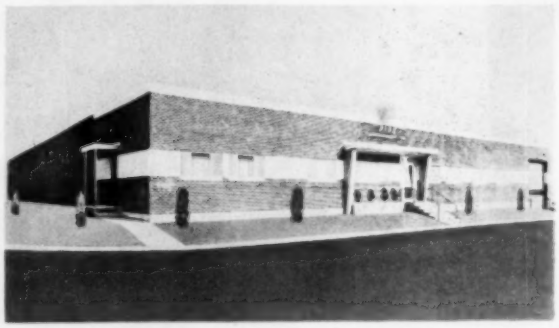
740-750 Grand Street — Brooklyn 11, N. Y.


S-W
STOWE-WOODWARD, INC.
The people who put the most man-hours per week into rubber roll development and manufacture — to help you profit by the yard.
Plants located in —
Griffin, Georgia
P. O. Box 851
Newton Upper Falls, Mass.
182 Oak Street
Neenah, Wisconsin
132 No. Commercial St.

Waiting for next week always costs you money.

NEWS ABOUT SUPPLIERS Continued

ing. . . . **DOW CHEMICAL CO.**, New York, N. Y.—Has assigned G. A. Stanley to the textile-fiber-sales office in New York, N. Y. Miss F. Van Hall has been appointed consultant on fabric design and color for Zefran. . . . **E. I. DUPONT DE NEMOURS & CO., INC.**, Wilmington, Del.—Will build a multimillion-dollar plant to produce Dacron on a site adjoining its rayon-manufacturing plant at Old Hickory, Tenn. . . . **FAIRBANKS CO.**, New York, N. Y.—Has appointed J. R. Shattles to the Virginia sales territory.



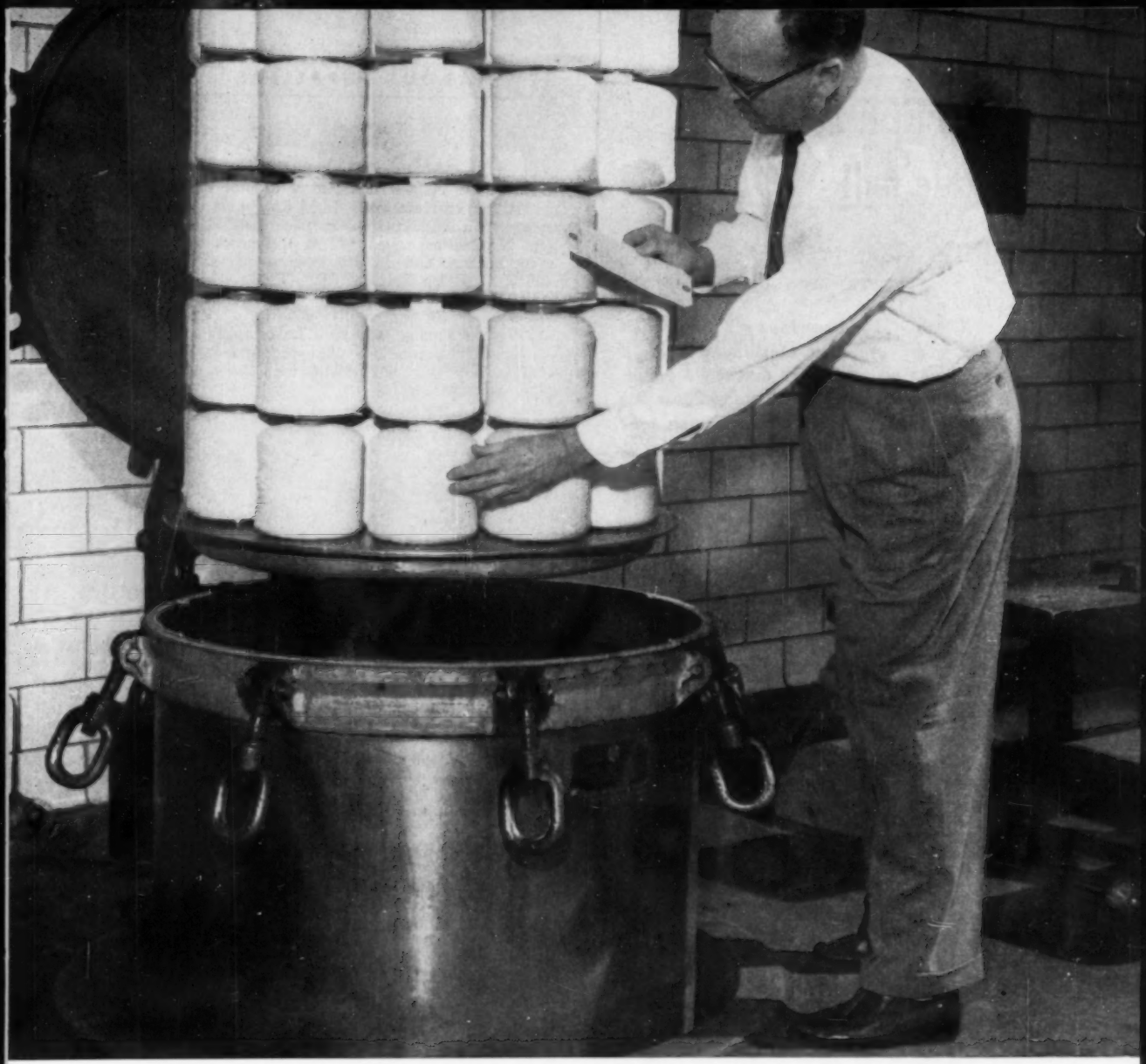
FIFE MFG. CO., INC., Oklahoma City, Okla., has moved into its new plant at 201 N. E. 48th St. (shown above). This is the second major expansion for the company in the last 2½ years.

GOODYEAR TIRE & RUBBER CO., Akron, Ohio—Has named D. B. Hefner field representative for packaging films at Charlotte, N. C. E. F. Keirnan has been appointed to the Film and Sheeting sales staff with headquarters in Akron. He will be responsible for coordinating and promoting sales of the company's polyester laminating film, Videne A. C. P. Moore has been named special representative for the Chemical Div. with headquarters in Charlotte, N. C. He will service textile and other accounts in the Carolinas. F. A. Bozzacco and R. E. Dyer have been appointed to the Chemical Div. Mr. Bozzacco, assigned to the coatings department, will be responsible for technical service concerning Pliolite rubber latices. Mr. Dyer will service accounts in the Mid-Central states.

GARDNER-DENVER CO., Quincy, Ill.—Has promoted R. L. Williams to advertising manager. . . . **HARRIS RESEARCH LABORATORIES, INC.**, Washington, D. C.—Has named Dr. J. Menkart to the staff. He will direct research projects concerned with keratin-fiber chemistry. . . . **WALTER E. HELLER & CO.**, Chicago, Ill.—Has named J. A. Kerr assistant vice president. He will continue as assistant secretary. . . . **HOWARD BROS. MFG. CO.**, Worcester, Mass.—Has named D. A. Spencer to the staff. His headquarters will be in Greenville, S. C.

HOWE SCALE CO., Rutland, Vt.—Has named F. E. Pringle general sales manager. . . . **KOPPERS CO.**, Pittsburgh, Pa.—Has formed two divisions to replace the company's Chemical Div. One of the divisions, the Plastics Div., has named D. L. Eynon, Jr., vice president and general manager. T. C. Keeling, Jr., has been named vice president and general manager of the newly formed Chemicals & Dyestuffs Div. . . . **MEAD-ATLANTIC PAPER CO.**, Atlanta, Ga.—Has appointed D. J. Bloom vice president in charge of Southeastern corrugated sales. . . . **MIDLAND-ROSS CORP.**, Cleveland, Ohio—Has bought the Hartig Engine & Machine Co., Mountainside, N. J. . . . **MILPRINT, INC.**, Milwaukee, Wis.—Has appointed I. Schildkraut sales representative in metropolitan New York. . . . **NATIONAL CYLINDER GAS CO.**, Chicago, Ill.—Has changed its name to Chemetron Corp. The Girdler Process Equipment Div. has named B. D. Miller vice president in charge of manufacturing. A. M. Bond, Jr., has been named director of engineering and product development, and N. T. Joyner has been named general sales manager.

PITTSBURGH PLATE GLASS CO., Pittsburgh, Pa.—Has broken ground for the company's continuous-fiber-glass-yarn



Superintendent Thomas B. Boyd examines a rack of cotton yarn before it goes into a Stainless Steel dye kier. All the dyeing equipment in this plant is Stainless Steel, fabricated by the Gaston County Dyeing Machine Company.

Stainless Steel saves 2½ hours a day

at Valdese Manufacturing Company, Valdese, N. C.

"We had to use Stainless in our new equipment," says Thomas B. Boyd, superintendent of dyeing at Valdese. "It's the only metal that doesn't rust or pit after contact with the corrosive materials used in our dyeing. Since we don't have to clean the Stainless after each dye cycle, we save enough time for an additional cycle every day—that's two and a half hours of production time."

The kiers and tanks previously used at Valdese, made of another material, corroded and chipped. Even after hours of cleaning they still left tiny flakes of metal on the fine cotton yarn.

"We don't have that problem now," says Mr. Boyd. "With Stainless we save time and do a cleaner, better job, and our equipment is almost indestructible."

You can get the same results with Stainless in your equipment. And if you want service-tested quality, specify USS Stainless Steel.

United States Steel Corporation — Pittsburgh
American Steel & Wire — Cleveland
National Tube — Pittsburgh
Columbia-Geneva Steel — San Francisco
Tennessee Coal & Iron — Fairfield, Alabama
United States Steel Supply — Warehouse Distributors
United States Steel Export Company

USS United States Steel

TRADEMARK

Here's FREE help on textile mill cleaning

Just about every important cleaning problem a textile mill runs up against is discussed in the Oakite booklet, "Textile Mill Cleaning Guide."

Like the sections on job-tested cleaning procedures for overhaul work ... on cleaning of machinery ... plant maintenance cleaning. There's also a section on cleaning of air-conditioning and humidifying equipment.

Chances are you'll find the answer to your special cleaning problems ready-to-hand in this helpful informative booklet. Write for your free copy to Oakite Products, Inc., 52D Rector Street, New York 6, N. Y.

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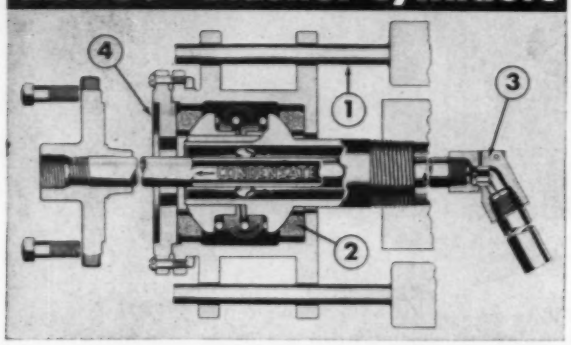
Technical Service Representatives in Principal Cities of U. S. and Canada

For service on Dry Cans and 30" Slasher Cylinders



Type LJSP with Syphon Elbow

1. Support rods carry all the real weight. Sealing assembly "floats" freely inside. **2.** Seals without packing—needs no lubrication or adjusting. **3.** Syphon elbow replaces clumsy curved syphon pipe with two straight pipes, passes right through joint. **4.** Assembly plate holds parts in place when head is removed.

Johnson ROTARY PRESSURE Joints
First in the Textile Industry

Write for Catalog J-2002

Shows Johnson Joints for all needs, on dry cans, print cans, calenders, Sanforizers, 5' and 7' cotton slashers, etc.

THE JOHNSON CORPORATION
814 Wood St., Three Rivers, Mich.

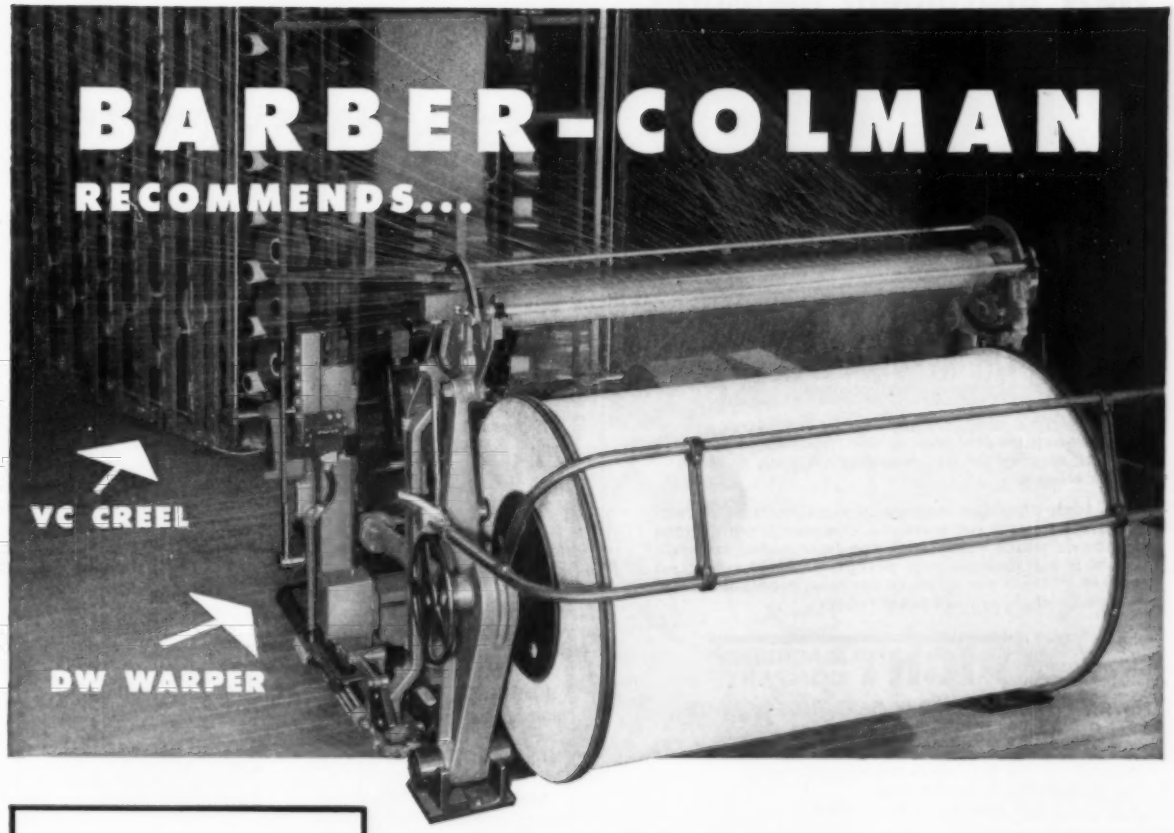
plant in Shelby, N. C. . . . **RAYBESTOS-MANHATTAN, INC.**, Passaic, N. J.—Has named S. Monroe special representative for national accounts. J. McKinley has been appointed manager of the Northeast district. . . . **ROBERTS CO.**, Sanford, N. C.—Has named W. A. J. Peacock a sales engineer in the eastern Carolinas. His headquarters will be in Sanford. . . . **J. O. ROSS ENGINEERING DIV., MIDLAND-ROSS CORP.**, New York, N. Y.—Has completed plans for construction of a new Chicago office building in Mt. Prospect, Ill. The 12,500-sq.-ft. building, scheduled for completion in September, will house engineering and office personnel servicing the Midwest. It will also include facilities for Chicago personnel of the John Waldron Corp.

SOUTHERN STATES EQUIPMENT CORP., Hampton, Ga., is building an addition to the present plant. The addition, containing about 32,500 sq. ft., will join the building that was completed in 1953 and will provide more assembly and manufacturing space. Shown above is an artist's sketch of how the plant will look after the building program is completed later this year.

JOSEPH T. RYERSON & SON, INC., Chicago, Ill.—Has appointed P. J. Fountain assistant manager of stainless-steel sales for the company's plant in Boston, Mass. . . . **SPAULDING FIBRE CO., INC.**, Tonawanda, N. Y.—Has elected W. R. Gilsdorf, Fort Wayne, Ind., vice president of the company. He is also general sales manager. R. A. Reynolds, Clarence, N. Y., has been elected assistant treasurer. . . . **STANLEY WORKS, STANLEY STEEL STRAPPING DIV.**, New Britain, Conn.—Has appointed A. L. Webster sales representative and packing and shipping engineer. He will service northwestern Ohio. . . . **SUN CHEMICAL CORP.**, New York, N. Y.—Has appointed S. L. Sperber to the Sales-Promotion Dept. of Warwick Chemical Div. He will supervise the sales promotion and advertising of the division's water repellents, Impregnole and Norane. T. F. Parsons, manager of the Converter Relations Dept., has been appointed to direct Warwick's wash-and-wear campaign for its new Permafresh resins.

CHAS. S. TANNER CO., Providence, R. I.—Is building a warehouse and plant in Greenville, S. C. The building will house offices, laboratory, and plant facilities and will be equipped with a railroad siding. It will be completed about Aug. 1. . . . **TAYLOR FIBRE CO.**, Norristown, Pa.—Has promoted K. M. Hayes to the newly created position of manager in charge of sales promotion and training. . . . **TELE-SONIC PACKAGING CORP.**, New York, N. Y.—Has appointed H. E. Crawford Mill Supply Co., High Point, N. C., sales representative for the textile industry. The Crawford Co. will handle sales and installations in North Carolina, Virginia, Tennessee, Georgia, South Carolina, and Alabama.

UNION CARBIDE CHEMICALS CO., DIV. OF UNION CARBIDE CORP., New York, N. Y.—Has named R. L. Duncan sales manager. M. R. Huffman has joined the quality-control laboratory at the South Charleston, W. Va., plant. . . . **WALLERSTEIN CO.**, New York, N. Y.—Has elected H. E. Smith chairman of the board of directors. A. C. Emelin succeeds Mr. Smith as president and chief executive officer of the company.



FEATURES OF THE NEW "DW" WARPER

CAPACITY. The "DW" Super-Speed Warper will wind beams up to 40" head diameter. All types of beams up to this size can be accommodated.

LET-OFF MECHANISM. In order to insure uniform pressure on the driving drum as the beam builds up, a new let-off mechanism has been developed. This permits extremely accurate automatic gaging and maintenance of pressure, and consequent uniformity of the beam.

DOFFING. A power-operated built-in doffing mechanism helps to reduce down time to a minimum and saves effort substantially. Sturdy arms, which support the beam, pivot outward to set the beam on floor or truck as desired.

PUT A NEW "DW" WARPER
IN FRONT OF YOUR PRESENT
"VC" CREEL

It is perfectly possible to do this, and the added advantages of lower cost and greater productivity can make the investment a profitable one. Gains come in several ways — larger beams can be wound, the beams are of greater uniformity throughout, and doffing is much easier. The new "DW" Super-Speed Warper is a little deeper from front to back, since the driving drum, clutch, brake, and motor are now arranged back of, rather than underneath, the beam. With this re-arrangement, valuable improvements have been made in many important elements of the drive and controls. We suggest you discuss the possibilities for *your* mill with your Barber-Colman representative at the next opportunity.

AUTOMATIC SPOOLERS • SUPER-SPEED WARPERS • WARP TYING MACHINES • WARP DRAWING MACHINES

BARBER-COLMAN COMPANY

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Batliboi & Company Forbes Street, Fort Bombay, India	J. Rabasa Isabel la Catolica 45-913 Apartado 7348 Mexico D.F., Mexico	Industria e Comercio de Maquinas S. A. Avenida Rio Branco No. 50, Rooms 1201/3 P. O. Box No. 63 Rio de Janeiro, Brazil	Do-Yei Shoji Kabushiki Kaisha Atlas Building (7th Floor) 11, Bingo-machi, 3-chome, Higashi-ku, Osaka, Japan	Associated Agencies (M'cr.) Ltd. Piccadilly House 11 Piccadilly Manchester 1, England	Associated Agencies (M'cr.) Ltd. 27 Kothari Building Napier Road Karachi 2, Pakistan

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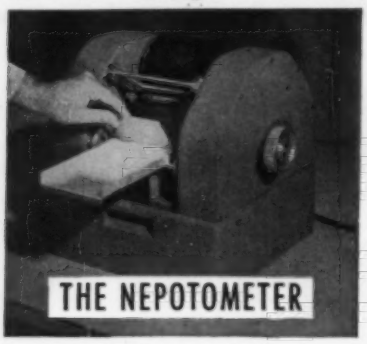
New Instrument Measures Cotton's Nep Potential



A 25-grain sample is prepared by hand cards and placed on the feed plate of the Nepotometer. Total time required for test, including stripping, is about six minutes.

This high precision instrument simulates manufacturing steps. Simply run a sample, compare it with photo standards which come with the instrument, and you know in advance the nep potential. Saves time and money. Permits you to make the most profitable use of your cotton. Literature upon request.

WRIGHT MACHINERY COMPANY
DIVISION OF SPERRY RAND CORPORATION
DURHAM, NORTH CAROLINA
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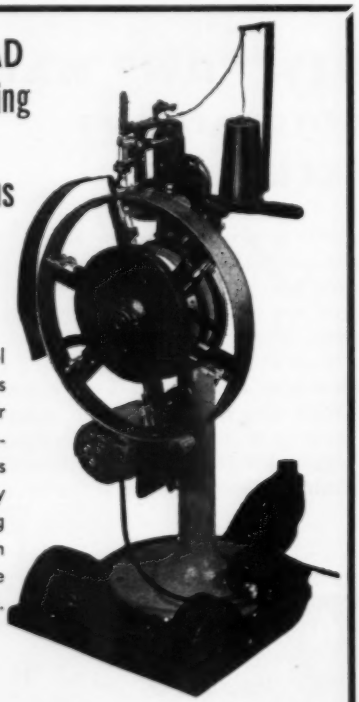
MODEL 31 AD
Piece-end Sewing with SAFE Retractable Pins



20" dia. cloth wheel with 6 pairs of pins retracted by cam for automatic cloth stripping. Retracted pins are safe. Heavy duty gear type sewing head. Single chain stitch. Wide range of stitch adjustments. Motor drive.

DINSMORE MANUFACTURING CO.
Box 267 Salem, Mass.

NEWS ABOUT MEN

Benjamin S. Bates has been named vice president of Marriner Combing Co., Lawrence, Mass.

J. W. L. Benson has resigned as a member of the board of directors at Chatham Mfg. Co., Elkin, N. C.

Whitworth F. Bird has resigned as chairman of the board of directors at Collins & Aikman Corp., New York, N. Y.

Frank M. Blue has been named superintendent of the Goodall-Sanford worsted-yarn-spinning plant of Burlington Industries, Inc., Hot Springs, N. C.

Francis X. Boland has been named head designer of the Saxonville Div. of Roxbury Carpet Co., Saxonville, Mass.

Anthony D. Borelli has been named assistant yarn superintendent of Pacific Mills' plant at Raeford, N. C. He had been superintendent of American Woolen Mills at Raleigh, N. C.

Ely Callaway, Jr., has been named executive vice president of Raeford Worsted Corp., Raeford, N. C., and Clarksville, Va.

John W. Connell has been appointed assistant to the president of Indian Head Mills, New York, N. Y.

CHARLES M. TRAVIS, JR., has been appointed the first president of Burlington Industrial Fabrics Co., a newly formed separate company within the Burlington Mills structure. His headquarters are in New York, N. Y.

Thomas E. Cowell, Jr., has been named vice president of Callaway Mills, Inc., LaGrange, Ga.

Dan Currier has been appointed overseer of carding at North Berwick Co., North Berwick, Me.

Robert J. Divan has been named manager of Worumbo Mfg. Co., Lisbon Falls, Me.

Georges F. Doriot has been elected to the board of directors of The Kendall Co., Boston, Mass.

ROBERT A. LAMBERTON (left) and THOMAS O. MOORE (right) have been promoted at P. H. Hanes Knitting Co., Winston-Salem, N. C. Mr. Lamberton has been advanced from vice president and treasurer to senior vice president and treasurer. Mr. Moore, formerly vice president and general counsel, has been named vice chairman of the of the board of directors.

NEW REVOLUTIONARY

GRATON AND KNIGHT

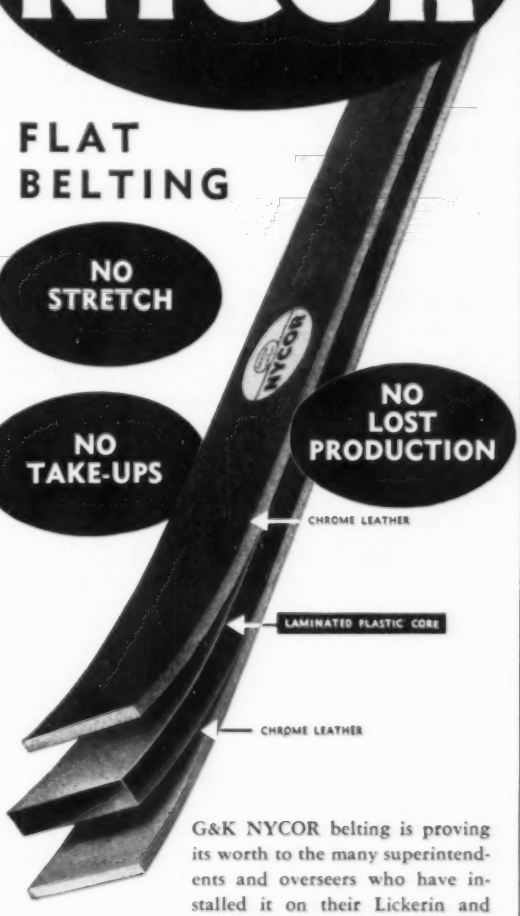
NYCOR

FLAT BELTING

NO STRETCH

NO TAKE-UPS

NO LOST PRODUCTION



G&K NYCOR belting is proving its worth to the many superintendents and overseers who have installed it on their Lickerin and Doffer drives. Its stretch-free feature, and its great coefficient of friction will give you more production — eliminate take-ups, and reduce maintenance costs.

Send For Brochure on Nycor Belting

GRATON & KNIGHT *Company* INC.

WORCESTER 4, MASSACHUSETTS

Shamrock No. 19 Trucks with "Vyntex" Plastic-coated Duck Body.

think of **SHAMROCKS** when you want **RUGGED WEAR ...LONG SERVICE!**

. . . Says "MARK-O-MERIT"®

Look carefully at any Shamrock's sturdy construction. You'll see why many textile plants report longer years of wear, at low cost, from famous Shamrock products. Shamrocks are used the world over—and an extensive range of styles is designed for textile plant needs . . . for example, the Shamrock No. 19 "Vyntex" Truck shown at top. Also, special Shamrocks will be made-to-order for your particular needs. Contact nearest sales office or write direct. MEESE, INC., Madison, Indiana.

SALES OFFICES: NEW YORK—F. R. Tyroler, 55 West 42nd St., PE 6-0615; ATLANTA—W. E. Petway, 723 Densley Drive, North Decatur, Ga., ME 6-3192; FORT WORTH—V. M. Hooton, 4220 Normandy Road, Tel. JEfferson 6-6564; WEST COAST—Petersen-Daniels, Inc., 3311 Beverly Blvd., Montebello, Calif., RAymond 3-7003. Export Mgr.—R. A. Auerbach, Easton, Pa. Cable Address: "Natly."

SHAMROCK

- *HAMPERS*
- *CANVAS BASKETS*
- *TRUCKS*

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GUARANTEED

to give drip-tight leak-proof seal

greatest name in unions

DART

For over 55 years the firm guarantee back of each and every DART UNION sold has been — *"if one should leak through we will give you two"!* The record reveals that less than 1 in every 100,000 has proven to be faulty. The extra wide bronze to bronze seats, precision ground to a true ball joint, mounted in heavy malleable iron pipe ends and protected by an extra heavy union nut, make a drip-tight, leak-proof connection WITHOUT EXCESSIVE WRENCHING time and time again.

Guarantee positive tight connections and extra long service on your pipe lines by using the DART GUARANTEED UNION.

Yours on request: Descriptive brochure on Dart Unions and Union Fittings.

DART UNIONS *Products of* DART UNION COMPANY PROVIDENCE 5, R. I.

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Caledonian Dye Works

DYERS AND BLEACHERS

Cotton, Rayon and Synthetic Yarns

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NEWS ABOUT MEN Continued

Thomas W. Evans has been named vice president and general merchandising manager of Burlington Men's Wear Fabrics Co., New York, N. Y.

William G. Everett has been named administrative vice president of Burlington Men's Wear Fabrics Co., New York, N. Y.

Edward A. Hanff has been named vice president for sales for Burlington Men's Wear Fabrics Co., New York, N. Y.

Robert M. Haughey has been appointed vice president of Carens Wool Co., Boston, Mass.

Raymond E. Henderson has been elected a vice president of Chatham Mfg. Co., Elkin, N. C.

Harold Hoke has been named production superintendent of United Merchants & Manufacturers plant at Union, S. C. He had been employed at the company's mill at Buffalo, S. C.

Robert O. Huffman has retired as president and general manager of Morgantown Full-Fashion Hosiery Co., Morgantown, N. C. He will continue as chairman of the board.

Fred J. Lighte has been named vice president in charge of merchandising of all divisions of Wamsutta Mills, New Bedford, Mass.

Edwin P. Madsen has been elected treasurer of F. C. Huyck & Sons, Rensselaer, N. Y.

Francis R. Masters, Jr., has been named secretary and treasurer of Philadelphia Penn Worsted Co., Philadelphia, Pa.

William H. Michael has been elected vice president in charge of manufacturing at Delaware Mills, Inc., New Castle, Del.

Minot Milliken has been elected a director of Drayton Mills, Spartanburg, S. C.

Strother E. Murdoch has been named general manager of manufacturing at Burlington Industries' Mooresville Mills, Mooresville, N. C. He had formerly been at Cramerton Mills, Gastonia, N. C.

ROBERT F. FITZPATRICK has been elected president of Revonah Spinning Mills, Hanover, Pa. He had been vice president and sales manager of the mill.

Henry Newby has been named overseer of carding at Charlottesville Woolen Mills, Charloteesville, Va.

Lawrence Oliver has resigned as bleachery superintendent of Exeter Mfg. Co., Exeter, N. H.

Glenn Osborne has joined Rose Mills, Inc., Philadelphia, Pa.

Gilbert T. Owren has been named general manager of the hosiery division of Glen Raven Knitting Mills, Inc., Glen Raven, N. C. He had been manager of sales, planning, and promotion.

George W. Pierce has resigned as assistant vice president and executive director of American & Efird Mills, Inc., Finishing Div., Mt. Holly, N. C.

Harry H. Purvis has resigned as vice president of Chicopee Mfg. Co., Cornelia, Ga.

M. Weldon Rogers has been elected a director of Exposition Cotton Mills Co., Atlanta, Ga.

Richard D. Seed had been named manager of Lanett Bleachery & Dye Works, a subsidiary of West Point Mfg. Co., West Point, Ga. He had formerly been superintendent of finishing at Millville Mfg. Co., Millville, N. J.

W. W. Sledge has been re-

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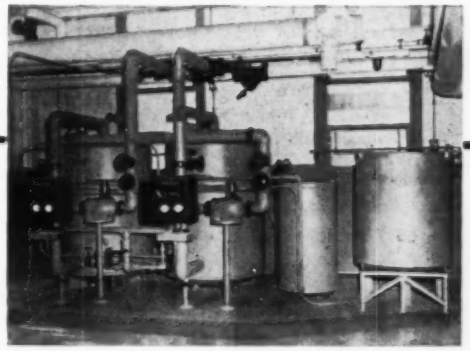

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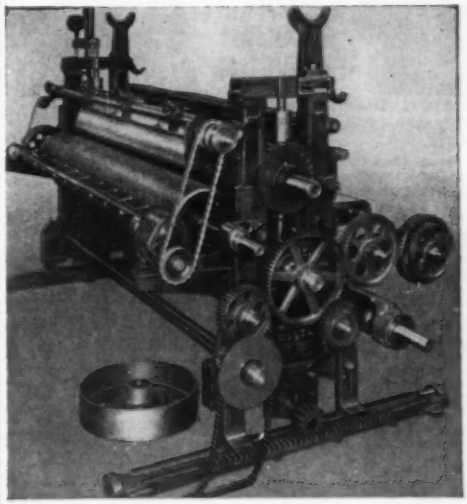

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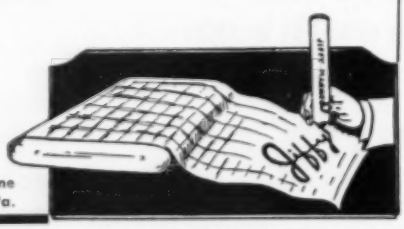

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elected president of Durham Hosiery Mills, Durham, N. C.

Ray Steil has been named vice president in charge of merchandising and production at Westwood Knitting Mills, Los Angeles, Calif.

Brinley Taylor has retired as vice president and director of Courtaulds (Canada) Ltd., Montreal, Que.

Alexander J. V. Thelan has been elected temporary president of Charlottesville Woolen Mills, Charlottesville, Va.

M. W. Tucker has requested retirement from his position as superintendent of Adams-Millis Corp.'s plant at Kernersville, N. C.

D. Cameron Turrentine, Jr., has been named vice president of J. P. Stevens & Co., Inc., Greenville, S. C. He had been executive vice president of Rosemary Mfg. Co. and Roanoke Mills Co., Roanoke Rapids, N. C.

Clifford H. Varnum has joined Southwell Combing Co., North Chelmsford, Mass., in a supervisory position.

Max Vetter has been named operations manager in charge of quality control at Shelley Knitting Mills, Inc., Philadelphia, Pa.

Textile World

OBITUARY

William H. Alexander, 58, former superintendent of Aspinook Corp., Jewett City, Conn.

Henry C. Arnall, 80, former director of Arnco Mills, Sargent, Ga., and Arnall Mills and McIntosh Mills, Newnan, Ga.

Walter Guy Efird, 69, a former director of American & Efird Mills, Inc., Mount Holly, N. C.

Glenn W. Grier, 75, former secretary of Johnson Mills of Eastern Mfg. Co., Selma, N. C.

Edward D. Gugebrod, 82, chairman of Gugebrod Bros. Silk Co., Pottstown, Pa.

W. K. Gunter, president and treasurer of Derry Damask Mills, Gaffney, S. C.

Kenneth W. Harvey, 83, retired director of York Knitting Mills Ltd., Woodstock, Ont.

Barclay D. Hull, former manager of Monarch Knitting Co. Ltd., St. Catherines, Ont.

Gordon Kaiser, 72, manager of the print wash-goods department, Berkshire Hathaway, Inc., New York, N. Y.

Oscar E. Kearns, 89, founder of O. E. Kearns & Son Hosiery Co., High Point, N. C.

M. B. Leath, 82, former assistant treasurer of Hannah Picket Mill, Rockingham, N. C.

William P. Libby, 80, retired vice president of Plymouth Cordage Co., Plymouth, Mass.

Samuel Littleton McClure, 80, retired superintendent of Oakdale Cotton Mills, Jamestown, N. C.

W. E. Mitchell, 54, general manager of Russell Hosiery Mills, Star, N. C.

Robert A. Scott, 85, former president of Peerless Knitting Mills, Boston, Mass.

John H. Strigner, 74, vice president and general sales manager of Groves Thread Co., Gastonia, N. C.

Clarence A. Weiller, 68, chief of the design studio for M. Lowenstein & Sons, Inc., New York, N. Y.

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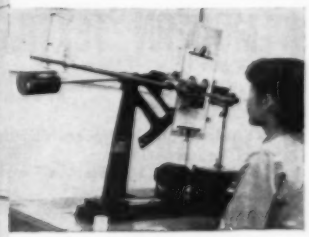

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42—C & K Model W-3 Woolen Looms, 82" 1946-49
30—Spdls—Whitin Schweiter Quillers, MS 1944
4—Abbott Quill Winders, 100 spdl. pin board—1953
68—C & K Model C-4 Looms, 78" swords, 4 x 1 1949
18—C & K Convertible Looms, C-4, 78", 4 x 1, 1948
48—Draper XD 46" Looms, dobby—1947
1—Arlington Scutcher 80", Vacuum Extractor L4, Detwister
1—Dalglish 100' x 72" Finishing Range, complete—1949
1—V. V. Finishing Range, 100' x 64' 1951
1—V. V. Finishing Range, 90' x 62"—1946
1—Windle Cloth Doubler 82", 1951
1—Verduin Electric Blanket Washer 50", 1950
1—K & G Silk type Calender, 3 rolls, 60" wide.
1—V. V. Hyd. 80 ton Calender, 3 rolls, 65"
26—S. S. Enclosed Dye Boxes, 6 x 12' wide
6—V. V. Duplex Stainless Dye Boxes, 12 x 8'
6—Stainless Enclosed Dye Boxes, 4 x 12', 1947-51
3—R. B. & F Print Machines; 3 color—64", 10 color—52", complete w/ backrigging
3—Mulhouse Print Machines; 19 color —63"
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Overseer: Finishing, Cloth Room, and Napping: Finishing experience, Indigo & Vat Denims, Chambrays, Suitings, Coverts, Sport Denims. Napping experience, 5 yd Grey Sheetings to 1.45 Suiting and Carton Flenne, all Weights. PW-7853, Textile World.

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Cost Accountant—Office Manager with 12 years experience, fully familiar with preparation of standard cost systems, budgetary controls and cost analysis, inventory controls, mill accounting, financial statements and reports. Experience includes spinning, weaving, dyeing, printing and finishing. PW-7654, Textile World.

Weave room shift overseer or second hand. Any model C&K or Draper. Natural yarns or synthetic. Standard weaves or novelities. 20 years in loomfixing and supervisory positions. Currently employed. PW-7780, Textile World.

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2—RAMSEY HYDRAULIC WARPERS 2 AND 4 BEAM

1—11 CAN FINISHING MACHINE 23x30

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6—AVECO 168" KNITTERS TRICOT

2—REINER 21" x 21" WARPERS 1948 VARIETY OF BEAMS

1—REINER 42" WARPER LATE

4—WILDMAN SINGLE SPACE 54 GA. F.F. KNITTERS • • 1952 MODELS

2—WILDMAN SINGLE SPACE 45 GA. F.F. KNITTERS • • COMPLETE

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1—V.V. TUBING MACHINE • • 1950

1—EXTRACTOR 60" FLETCHER S.S. • 1951

2—JIGS 70" WERNER S.S. SPLASH PANS

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1—USTER 1951 WARP KNOTTER • • 2 DRAWING-IN FRAMES

1—TERRILL BOBBIN STRIPPER WITH HOIST & COMPRESSOR MODEL 735

12—C&K 82" W-3 LOOMS 4x1 CONV. 1953

18—DRAPER 50" XD LOOMS 1948-1952 DIEHL DR.

2—72" REINER DIRECT WARPERS • • 1948

100—SPINDLES WHITIN-SCHWEITER AUTO QUILLERS

2—COCKER 54¼" WARPERS • DIRECT • • 1948

1—CAROLINA REED CLEANING MACHINE • • S.S. TANKS • • UP TO 82"

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1—BALING PRESS, G&H., 1946, Open Type, 56"x36"x5', Motor Drive.
1—BALING PRESS, Economy, Mod. 50, Downstroke, 24"x50" x up to 45".
1—WASTE BALING PRESS, Minnich, Chamber 27"x54"x78".
3—BLOWERS, Ball Bearing, 30", 40", Raw Stock, V-Belt Drives.
10—DYE BUCKETS, S.S., Reinforced, w/handles, 14" dia. x 17½" deep.
1—SAMPLE CARD, D&F., Cyl. 11"x15" dia., 4 Workers, 8" Doffer, Comb.
13—CAN COILERS, Whitin, 12"x36" Can.
1—BELT CONVEYOR, 30"x250', in two Motorized Sections.
1—CEILING CONDENSER, K&N., Ret. Air., Cyl. 24" dia. x 48".
1—COATING HEAD, J. Waldron, 1952, 66'x10" dia., 85 Durometer Neoprene.
1—EXTRACTOR, Tolhurst, S.S., 60" Basket, 20½" deep, 10 Hp. Motor.
1—PIT FEED, P&S., Raw Stock, 78", w/Variable Speed Drives.
2—PIT FEEDS, Sargent, Raw Stock, 48", w/Variable Speed Drives.
2—HOPPER FEEDS, Sargent, 44", Model M, Raw Stock.
1—HOPPER FEED, Bramwell, 60", with Spike Apron.
4—INT. BROADBAND FEEDS, D&F., Whitin, 48", complete.
1—GARNETT, J. Hunter, 2 Cyl. 30"x60", B.B., Clothed 24 and 26.
6—CARD GRINDERS, D&F., Roy, 48", 60", Solid Roll, Traverse type.
1—HOIST, Manning, Maxwell & Moore, 3 ton Elec. Hoist, 6 Hp. Motor.
1—DYE KETTLE, Scribner, Raw Stock, 500# Capacity, 8-18 S.Steel.
4—LUMPERS, Clark, 48", Ball Bearing, with Hopper Feeds.
1—OILING SYSTEM, 48", 2 Spencer Brush type Oilers, Tank, Pump, Motor.
2—RAYON STAPLE OPENERS, D&F., 1950, B.B. Cyl. 21½ x 42" dia.
1—MIXING PICKER, D&F., 42", 6 Bar, with Hopper Feed, Blower.
1—MIXING PICKER, D&F., 48", 6 Bar, Hopper Feed.
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An * indicates advertisers who have essential technical information on their products in the IMPORTANT 1957-1958 FACT FILE issue.

*Abbott Machine Co., Inc.... 30
Acme Steel Co..... 191
*Adolff, Emil 37
Ainslie Knitting Machine Co. 192
Alemite Div., Stewart-Warner Corp. ... 114
Allis Co., Louis 169
Allis-Chalmers Mfg. Co.... 155
American Moistening Co.... 26
Armco Steel Corp. 189
Armstrong Cork Co.....40-41
Arnold, Hoffman & Co., Inc. 70
*Atkinson, Haserick & Co., Inc. 147
*Atlas Electric Devices Co.. 22

*Bahnson Co. 28
Barber-Colman Co. 195
*Booth Co., Benjamin....138-139
Borne Chemical Co., Inc.... 188
Bristol Co. 165
Buffalo Forge Co. 150
*Butterworth & Sons Co., H. W. 17

Caledonian Dye Works..... 198
Celanese Corp. of America Textile Div. 159
Ciba Co., Inc. 63-64
*Cobble Bros. Machry. Co... 125
*Cocker Machine & Foundry Co. 187
Collins Bros. Machine Co... 158
*Continental-Diamond Fibre Div., The Budd Co., Inc. 38
*Corn Products Sales Co.... 113
Curtis & Marble Machine Co. 136

Darnell Corp., Ltd..... 186
Dayton Rubber Co., The Industrial Replacement Div. 175
Textile Div. 24-25
*Diehl Mfg. Co. .....2nd Cover
Dinsmore Mfg. Co. 196
Dixie Bearings, Inc. 141
Dixon Corp. 190
Dodge Mfg. Co. 171
Dow Chemical Co. 35
*Draper Corporation 13
Duesberg-Bosson of America, Inc. 199
duPont de Nemours & Co., E. I.
Textile Fiber Div.....156-157

Fairbanks Co., The..... 198
*Faultless Caster Corp..... 132
Fidelity Machine Co., Inc. 145
Fletcher Works, The 137
*Foster Machine Co..... 117
Franklin Process Co..... 39
Friez Instrument Div. Bendix Aviation Corp.... 148

Garland Mfg. Co. 134
Gastonia Textile Sheet Metal Works 144
Gaylord Container Corp..... 153
*General Chem. Div. Allied Chem. & Dye Corp. 79
*General Dyestuff Co..... 135
Gessner Co., David 173
Goodyear Tire & Rubber Co. 19
*Graton & Knight Co., Inc... 197
*Guider Specialty Co..... 170

*Harwood & Son Geo. S..... 170
Haskell-Dawes Mach. Co., Inc. 162
Herr Mfg. Co. 168
Hinde & Dauch 174
Hooker Electrochemical Co. 74
Howard Bros. 164
Hungerford & Terry, Inc. .. 199
*Hunter Inc., James..... 151

Industrial Rayon Corp. 42-43, 161
*Industrie-Werke-Karlsruhe.. 107
International Salt Co..... 119

*Jacobs Northern & Southern Div., E. H. 152
*Jenkins' Sons, Inc., M. W. 174
*Jiffy Textile Marker Co.... 200
*Johnson Corp., The..... 194
*Jones Motrola Corp..... 162

Keever Starch Co..... 94
Kidde Mfg. Co., Inc..... 179
*Klauder-Weldon-Giles Mach. Co. 20
Koppers Co., Inc..... 101

Lincoln Eng'g. Co..... 127
Lindly & Co., Inc..... 176
Link-Belt Co. 21
Lockwood Greene Engineers, Inc. 188
*Loper Co., Ralph E..... 198
Lubriplate Div., Fiske Bros. Refining Co. 180
Lunhenheimer Co. 149

*Main, Inc., Chas. T..... 200
M-B Products Co. 170
*McBride, Ed. J..... 18
Meese, Inc. 197
Mercury Clutch Div. Automatic Steel Prods. Inc. 166
Miller Corp., Harry 44
Minneapolis-Honeywell 181
Micro Switch Div. 167
*Monsanto Chemical Co. Plastic Div. 83
*Mount Hope Machinery Co. 130
Muller, Franz 27

National Aniline Div. Allied Chem. & Dye Corp. 29, 87
*National Ring Traveler Co.. 146
National Starch Prods., Inc. 109
Nitrogen Div., Allied Chem. & Dye Corp. 75

Oakite Products, Inc. 194

Parks-Cramer Co. 31
*Perfecting Service Co..... 158
*Platt Bros. Sales Ltd..... 147
Powell Co., William 32
*Proctor & Schwartz, Inc.... 177

Radio Corp. of America.... 178
Raybestos-Manhattan Inc. Manhattan Rubber Div. .. 160
Ridge Tool Co. 144
Roberts Co. 23
*Rohm & Haas Co..... 86
Ryerson & Son, Inc., J. T... 163

*Saco-Lowell Shops 34, 96
*Sargents' Sons Corp., C. G. 154
Scherr Co., Inc., George... 200
*Scott Testers, Inc..... 201
Signode Steel Strapping Co. 182
Sirrine Co., J. E.....3rd Cover
Solvay Process Div., Allied Chem. & Dye Corp..... 71
*Sonoco Products Co..... 143
Square D Co. 131
Standard Chem. Prods., Inc. 105
Steel Heddle Mfg. Co..... 123
Stowe-Woodward, Inc...128, 192
*Supreme Knitting Machine Co. 183
Suter Co., Alfred 199
Swift & Co., Soap Dept..... 82

Taylor, Stiles & Co..... 184
*Texas Co., The.....4th Cover
Textile Banking Co..... 140
*Textile Machine Works.... 46
Tompkins Bros. 166
Torrington Co., The (Bearings) 185
Tri-State Engineering Co... 129
Trust Company of Georgia. 102
Turbo Machine Co. 110

Union Carbide Chemicals Co., Div. of Union Carbide Corp. 142
U. S. Steel Co. 193
Universal Winding Co...36, 98

Veeder-Root, Inc. 133

West Penn Power 172
*West Point Foundry & Machine Co. 14
Whitin Machine Works.... 121
Wildman-Jacquard Co. 33
*Wolf & Co., Jacques..... 78
Woonsocket Rubber Co..... 73
Wright Machinery Co., Div. of Sperry Rand Co. 196

Young Aniline Works, Inc. 152

CLASSIFIED ADVERTISING
F. J. Eberle, Business Mgr.

EMPLOYMENT OPPORTUNITIES 202

EQUIPMENT (Used or Surplus New) For Sale 202-207

WANTED Equipment 206

ADVERTISERS INDEX

Advanced Textile Company..... 204
American Air Compressor Corp. 204
American Cyanamid Co..... 202
Bialek & Co., Theodore..... 204
Blank & Co., A & M..... 206
Bresani, Joseph 204
Fitzgerald, James E..... 207
Industrial Products of America. 207
Krehbiel Corporation 207
Lewieth Machinery Corp., Wilson 205
Machinery Sales Corp..... 207
Mar-Day Textiles Co..... 204
McDowell Associates Inc..... 204
McKittrick Co., Frank G. W... 205
Miller Machinery Co..... 207
Mohawk Valley Knitting Machine Co. 206
Pennsylvania Spool & Equipment Co. 207
Perry Equipment Corp..... 407
Rabinowitz & Sons, William.... 203
Republic Textile Equipment Co.. 202
Southern Textile Works..... 204
Stave & Kessler..... 207
Textile Auxiliaries Inc..... 206
Wheeler Co., Frank W..... 207
Whitehead Supply & Engineering Co. 205
Williams Machinery Co..... 204

Textile World

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for more information . . . . .

. . . on Advertisements, Equipment & Supply News, New Dyes & Chemicals, free New Literature, or TEXTILE WORLD Editorial Reprints described in this issue . . .

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LITERATURE, BOOKLETS AND TECHNICAL BULLETINS AVAILABLE FROM FOLLOWING ADVERTISERS IN THIS ISSUE:

A-1	ALEMITE DIV.	114
A-2	ALLIS-CHALMERS MFG. CO.	155
A-3	ALLIS CO., LOUIS	169
A-4	ARMCO STEEL CORP.	189
A-5	BRISTOL CO.	165
A-6	BUFFALO FORGE CO.	150
A-7	DARNELL CORP.	186
A-8	DU PONT—TEXTILE FIBERS DEPT.	156, 157
A-9	FAIRBANKS CO.	198
A-10	FAULTLESS CASTER CORP.	132
A-11	FOSTER MACHINE CO.	117
A-12	GUIDER SPECIALTY CO.	170
A-13	INDUSTRIAL RAYON CORP.	161
A-14	JOHNSON CORP.	194
A-15	LINCOLN ENG'G. CO.	127
A-16	LINK-BELT CO.	21
A-17	LUBRIPLATE DIV.	180
A-18	M-B PRODUCTS CO.	170
A-19	MICRO SWITCH DIV.	167
A-20	MILLER CORP., HARRY	44
A-21	MONSANTO CHEM. CO.	83
A-22	MT. HOPE MCHRY. CO.	130
A-23	NITROGEN DIV.	75
A-24	OAKITE PRODS., INC.	194
A-25	PARKS-CRAMER CO.	31
A-26	PERFECTING SERVICE CO.	158
A-27	PROCTOR & SCHWARTZ INC.	177
A-28	RADIO CORP. OF AMERICA	178
A-29	SOLVAY PROCESS DIV.	71
A-30	SCHERR CO., GEORGE	200
A-31	SUPREME KTG. MACH. CO.	183
A-32	SUTER CO., ALFRED	199
A-33	TAYLOR-STILES & CO.	184
A-34	WEST PENN POWER CO.	172

ADVERTISERS' LITERATURE: This card expires July 31, 1958

A-1 A-2 A-3 A-4 A-5 A-6 A-7 A-8 A-9 A-10 A-11
A-12 A-13 A-14 A-15 A-16 A-17 A-18 A-19 A-20 A-21 A-22 A-23 A-24 A-25
A-26 A-27 A-28 A-29 A-30 A-31 A-32 A-33 A-34

ADDITIONAL INFORMATION ON ADVERTISEMENTS (Jot Numbers)

PAGE	SUBJECT	PAGE	SUBJECT

EQUIPMENT AND SUPPLY NEWS:

T-1 T-2 T-3 T-4 T-5 T-6 T-7 T-8
T-9 T-10 T-11 T-12 T-13 T-14 T-15 T-16 T-17 T-18 T-19 T-20 T-21 T-22
T-23 T-24 T-25 T-26 T-27 T-28 T-29 T-30 T-31 T-32 T-33 T-34 T-35 T-36
T-37 T-38 T-39 T-40 T-41 T-42 T-43 T-44 T-45 T-46 T-47 T-48 T-49 T-50
T-51 T-52 T-53 T-54 T-55 T-56 T-57 T-58

NEW LITERATURE:

F-1 F-2 F-3 F-4 F-5 F-6 F-7 F-8 F-9 F-10 F-11
F-12 F-13 F-14 F-15 F-16 F-17 F-18 F-19 F-20 F-21 F-22 F-23 F-24 F-25
F-26 F-27 F-28 F-29 F-30 F-31 F-32 F-33 F-34 F-35 F-36 F-37 F-38 F-39
F-40 F-41 F-42 F-43 F-44 F-45 F-46 F-47 F-48 F-49 F-50

DYES AND CHEMICALS: D-1 D-2 D-3 D-4 D-5 D-6 D-7 D-8 D-9 D-10 D-11 D-12 D-13

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A-1 A-2 A-3 A-4 A-5 A-6 A-7 A-8 A-9 A-10 A-11
A-12 A-13 A-14 A-15 A-16 A-17 A-18 A-19 A-20 A-21 A-22 A-23 A-24 A-25
A-26 A-27 A-28 A-29 A-30 A-31 A-32 A-33 A-34

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PAGE	SUBJECT	PAGE	SUBJECT

EQUIPMENT AND SUPPLY NEWS:

T-1 T-2 T-3 T-4 T-5 T-6 T-7 T-8
T-9 T-10 T-11 T-12 T-13 T-14 T-15 T-16 T-17 T-18 T-19 T-20 T-21 T-22
T-23 T-24 T-25 T-26 T-27 T-28 T-29 T-30 T-31 T-32 T-33 T-34 T-35 T-36
T-37 T-38 T-39 T-40 T-41 T-42 T-43 T-44 T-45 T-46 T-47 T-48 T-49 T-50
T-51 T-52 T-53 T-54 T-55 T-56 T-57 T-58

NEW LITERATURE:

F-1 F-2 F-3 F-4 F-5 F-6 F-7 F-8 F-9 F-10 F-11
F-12 F-13 F-14 F-15 F-16 F-17 F-18 F-19 F-20 F-21 F-22 F-23 F-24 F-25
F-26 F-27 F-28 F-29 F-30 F-31 F-32 F-33 F-34 F-35 F-36 F-37 F-38 F-39
F-40 F-41 F-42 F-43 F-44 F-45 F-46 F-47 F-48 F-49 F-50

DYES AND CHEMICALS: D-1 D-2 D-3 D-4 D-5 D-6 D-7 D-8 D-9 D-10 D-11 D-12 F-13

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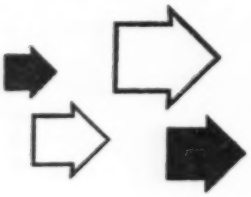

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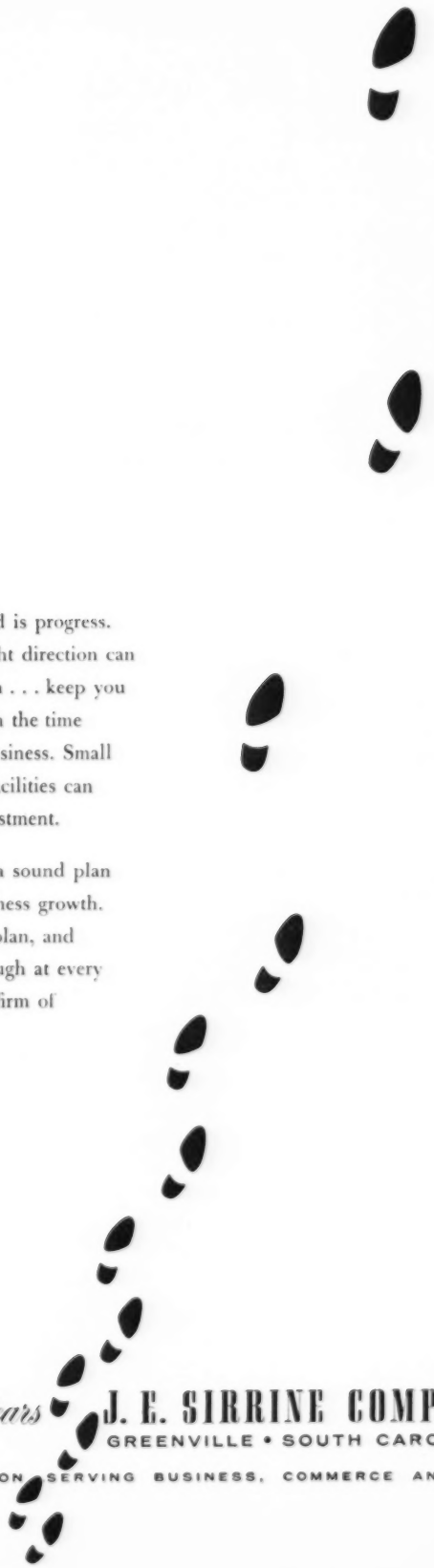

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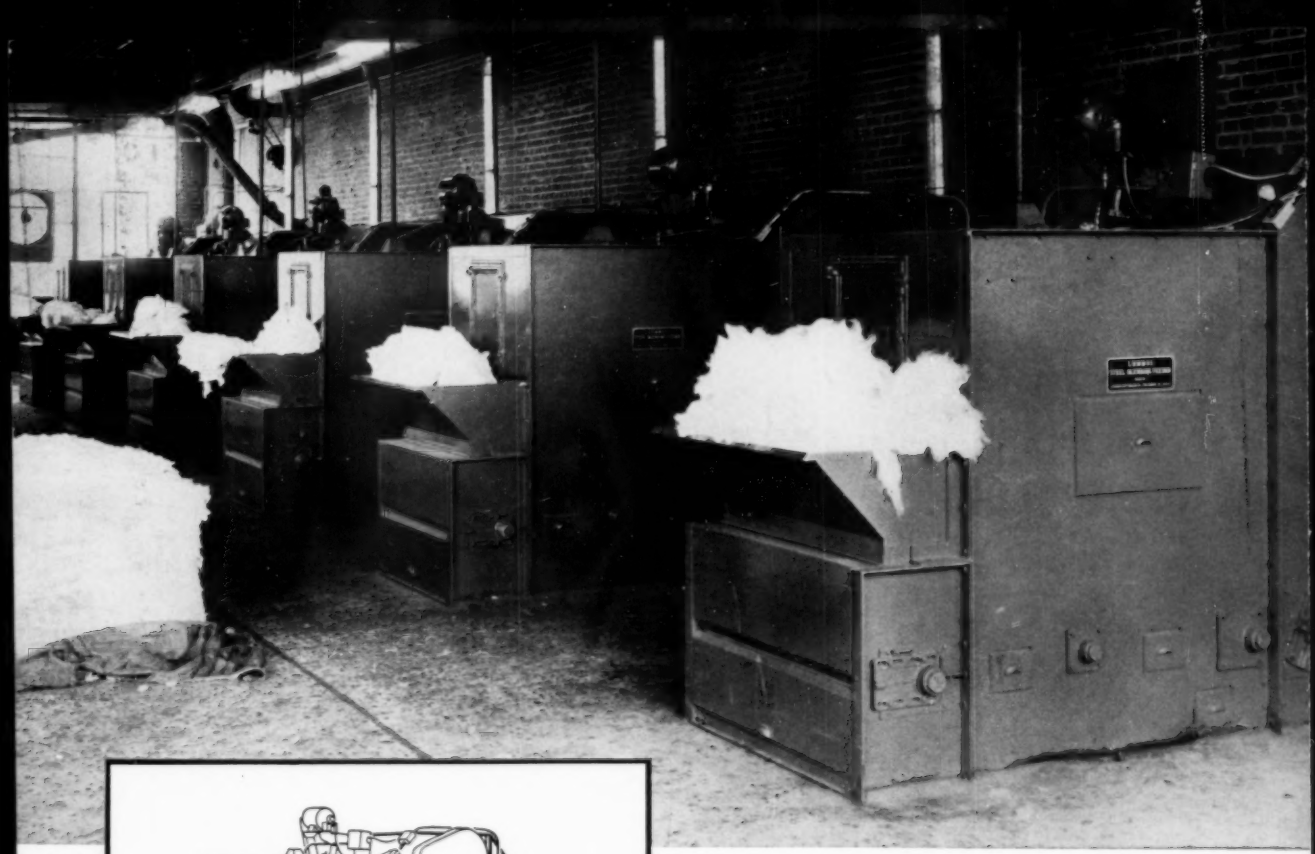

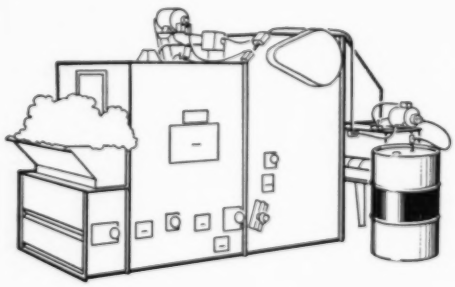

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